

THE MONIST.

THE ARYANS AND THE ANCIENT ITALIANS.

A PAGE OF PRIMITIVE HISTORY.¹

THE ethnographical problem concerning the Aryan-speaking peoples seems to be solved, because there is a certain acquiescence in the opinion, advanced as early as the beginning of this century, that the Aryans before they settled where they have been historically found were divided into as many ethnical groups as there are peoples with national characteristics, like, for instance, the Italians and the Hellenes. It is true that Latham, Benfey Geiger, Pöschke, and Penka have attempted to find a different solution of the problem. But the majority of archæologists and philologists have not been shaken from the old opinion, and have even interpreted by the assistance of the old hypothesis the facts recently brought to light. To me, however, it seems that the Aryan problem is not yet solved; and in spite of the labors of Italian archæologists that part of the question which relates to prehistoric Italy is still very obscure.

It is for this reason that I wish to present the results which I have reached by means of anthropological studies upon ancient Italy, and by means of a comparison between Italy and the other regions of Europe, in the hope that in the new form in which I

¹Translated from the manuscript of Professor Sergi by I. W. Howarth, of the University of Chicago.

study the Aryan problem in Italy I may be able to throw some light upon the Aryan problem in Europe.

I.

From archaeological discoveries at Villanova in the Province of Bologna, down to those at Tarquinia Corneto, at Vetulonia, and at Albalonga in Latium, there has been a question concerning the people or peoples of the first age of iron who left burying grounds with tombs for cremation, as to whether they were Etruscans or Umbrians, or Umbro-Latins. And from this has arisen the great contention concerning Etruscan and Italian origins, commonly so called, and the division between the archaeologists of Bologna who affirm with Professor Brizio that the Etruscans were an Oriental people who came by sea, and that the Umbrians were Aryan Italians, and the archaeologists of Rome who affirm with Helbig and Pigorini that the Etruscans were an Italian branch which came from the North and stopped in the valley of the Po before establishing themselves in Etruria.

The problem is this: Are the Umbrians Italians? Are the Italians Aryans? These two questions may be reduced to one: Who were the Italians?

The Italian origin of the peoples of Italy has been established by two very important characteristics,—language and civilisation. The latter is determined by archaeological data from the bronze epoch and from the first appearance of iron. The physical characteristics of the population have not been taken account of, because philologists and archaeologists in general look upon them as useless and as little susceptible of results.

The Aryan origin of the Italians has also been determined by means of the same two characteristics, linguistic and archaeological. Archaeologists and philologists have unanimously declared that the Italians are Aryans like the Celts, the Germans, the Slavs, and the Indians. If they had limited themselves to affirming the Aryan origin of the language and civilisation without touching ethnology, they would have been able, perhaps for the most part, to sustain the thesis. But instead of that they have passed into ethnology

without examining the physical characteristics of these Aryan-speaking Italians, and have solemnly affirmed the physical unity of the two races.

It is well known that in the enthusiasm of the first linguistic discoveries which established the unity of origin of the Aryan languages, the physical unity of the peoples speaking the Aryan language was erroneously affirmed. But it is equally well known that the most superficial analysis of the physical characteristics of all these peoples has shown that they belong to different human varieties. To-day the question is to find out who among the different ethnical groups which speak languages of Aryan origin were Aryan, and who among them have assimilated the Aryan language and civilisation or had it imposed upon them.

In Germany especially this question has been warmly discussed. Virchow, although he has been for a long time attempting to solve the problem, has never succeeded. He cannot persuade himself of the fact that the majority of the German-speaking population who settled in the south and central Germany is different in its physical type, especially in its cranial features, from those who are generally looked upon as thoroughly Germanic, and who are found further north, but always in the minority in respect to the great mass of Germans of the brachycephalic type.¹

The difficulty of the solution of the question in regard to two Germanic types is derived above all from the belief that all those who speak German are legitimate Aryans, and from the conviction that the true primitive Germanic type was that of the so-called *Reihengräber*, which is in the minority in respect to the other type which predominates and which is brachycephalic and dark.

I hint at the difficulties of the Germanic problem, because they are not very different from those of the Italian problem. The solution of neither the one nor the other can be found, I believe, without the combination of archæological and linguistic results with anthropological, and without their convergence, when, how-

¹ See Virchow, *Rassenbildung und Erblichkeit*. Festschrift für Bastian. Berlin, 1896.

ever, the latter may not be obtained by rational, or rather natural, methods.

Meanwhile it is useless to show how, in the matter of determining the Italian origin of the primitive inhabitants of Italy, there is no agreement between the linguistic and archæological results. For, while a language with Aryan characteristics divided into many dialects, at least in a few ethnical groups, is found from Umbria to the extremity of the peninsula, the civilisations are diverse, especially in some marked characteristics to which are given an Aryan signification.

According to Brizio the Umbrians should be the Italians *par excellence*, not only on account of the complexity of archæological facts which unite them to the other peoples called Aryan, but also on account of their peculiar funeral custom with its characteristic feature, that is, the cremation of bodies, as it is found in the first age of iron from Bologna to the mouths of the Tiber in all that territory which formed prehistoric Umbria in its most flourishing period, from the Adriatic to the Mediterranean, as is indicated by Herodotus, and as was eventually demonstrated by the archæological discoveries at Villanova, at Certosa of Bologna, at Tarquinia Corneto, at Vetulonia, at Albalonga, and in the district of Rimini.

On the other hand, according to Pigorini, the Italians must have occupied a greater territory, because they extended beyond the region named into the valley of the Po where has been discovered the Terramare, dwellings built on piles driven into the ground. Wherever Pigorini finds archæological objects of the form and character common to the Aryans, and cremation as a funeral rite, he sees Italian-Aryans. And his theory, which is substantially identical with that of Helbig, is very well known.

The Italians, so Pigorini and Helbig maintain, came from the North, occupied the valley of the Po, constructed pile dwellings with some features which recall the four-sided city of primitive Rome. For unknown reasons, before the first age of iron they abandoned them, crossed the Apennines and came into the territory which later became Etruria and founded there the Etruscan cities. Then they pushed into Latium and founded Rome. Hence the

Etruscans and Latins were Aryan Italians, formerly inhabiting the pile dwellings in the region of the Po, to-day brought to light in the Terramare, which contains the remains of dwellings and domestic utensils. Therefore Pigorini believes that these Aryan peoples may have pushed on even to the Ionian Sea.

Apart from the divergence between these two renowned archaeologists in the interpretation of the Terramare, in which Brizio thinks he has found the ancient Ligurian Italian stock, both the one and the other find Italian-Aryans wherever they discover the funeral ceremony of cremation associated with bronze, with characteristics common to other European peoples also called Aryans, and both these renowned archaeologists accept the supposition that before the Italians emigrated into Italy and the Hellenes into Greece they constituted a single ethnical group, the Greco-Italic, which divided after a time in the Balkan Peninsula.

But not all archaeological data of Terramare in the valley of the Po and of Umbria correspond to those of other Italian populations speaking Italian languages of the Aryan type. Cremation as a funeral rite did not exist outside of ancient Umbria and the little territory where Rome was founded. The tombs of Piceno, for example, at Novilara near Pesaro, and those farther south at Alfedena (ancient Aufidena), and others, clearly demonstrate this. How is it that Italians did not all have one funeral rite? Why is there not found the same convergence of archaeological facts, so fundamental, as in the linguistic? In other words, proof of the Aryan origin of the Italians has a greater extension in language than in archaeology, and in general in civilisation also, if not wholly, at least in part. Archaeologists know this very well. Perhaps it will be said that those ethnical groups which are comprehended in the common term, Sabellians, are not Italians. Then the number of Italians, with their territory, would be reduced to less than half the populations which have occupied Italy and which speak the Italian language, which would be absurd.

All this difficulty, all these doubts have not yet been settled by archaeology and linguistics, studies which have not been associated with physical anthropology. The latter, it appears to me, by ex-

examining the physical characteristics of the different ethnical groups which are found in Italy may be able to show whether the Italians are Aryans or whether they belong to another human stock different from the Aryans. And as the Umbrians were a people who from archaeological discoveries and from linguistic relation appear to have been a branch of the Aryan stock, it is from them that we may be able to gain some useful anthropological knowledge which may prove to be the key to the solution of the Aryan problem in general.

II.

Granted that the Umbrians of Bologna, as of all the Umbrian territory at the time of the first age of iron, burnt their dead, as is shown by the great burying-grounds with charred remains, it would seem that we can never know their osteological characters. But it is known that the Etruscan invasion restored the practice of inhumation in all the Umbrian region, in Western Etruria as well as beyond the Apennines in Felsinean territory. The numerous tombs of the old Certosa of Bologna are an evident demonstration of this; and Nicolucci, Calori, and myself have had many skeletons from those tombs to examine.

The same is true of Western Etruria, in which many skulls have been exhumed and studied, by Nicolucci, Zanetti, Calori, and myself in Italy. Other series of Etruscan skulls are found in many of the museums of Europe. It may be affirmed therefore that the number of skeletons exhumed from the Etruscan tombs, from the whole territory or from that part of it dominated by that people, has been sufficient to give a knowledge of the osteological features of the inhabitants, who had a civilisation of bronze and later of the first age of iron, and the funeral ceremony of cremation.

Now it may be objected that the skulls of which I speak are not Umbrian. I reply at once that they are both Umbrian and Etruscan, because they must belong to the Umbrian population which was conquered by the Etruscan, and to the Etruscan population which conquered. Further on my reply to this objection will be more complete.

I maintain that the Etruscans were a colony of the Eastern Mediterranean with a civilisation which had undergone Asiatic influences, and that they settled upon the shore of the Mediterranean in Umbrian territory, where they became strong and powerful on land and sea, and in consequence had gone to the Apennines and invaded the stronghold, I might say the capital of Umbria, Felsina, where they established new settlements and then extended themselves beyond the valley of the Po, subjecting those populations. Brizio has clearly demonstrated these facts, and I have only to refer the reader to his works.¹

A colony, however large it may be, is necessarily limited in the number of its components. The Etruscan colony must have been composed of some thousands of people. Hence it is easy to suppose, that that colony increased little by little by the fusing of its population with the inhabitants of the occupied territory, who must have been numerous from what is known of the flourishing condition of the Umbrian rule. And it is also easy to think, and admit, that when they made military expeditions and conquests their army was in great part composed of the primitive inhabitants of the conquered territory, that is, of Umbrians.

Now there must have been a time in which no difference could be detected between the colonists, the masses of the people, at least, with their descendants, and the ancient Umbrian inhabitants. Etruria in its more flourishing period, had, from one end to the other, uniform civilisation and customs. The funeral rite of cremation gradually disappeared and was substituted for that of inhumation; even the name Umbrian was lost forever from the western region, and that of Etruria was substituted for it. But the people did not disappear. They were naturally fused with the Etruscans. Without the archaeological discoveries of to-day we could not know that Etruria was Umbria. But Brizio shows, by means of the gradual transformation of funeral customs and of the arts, the persistence of the Umbrian people under the Etruscan

¹ Brizio, *La provenienza degli Etruschi, Atti e Memorie di Storia Patria per le Romagne*. Bologna, 1895. *Id. Monumenti archeologici della provincia di Bologna*. 1881.

rule.¹ Nor can it be otherwise, unless one wishes to admit the absurdity that a limited colonisation causes a numerous and dense population entirely to disappear.

If, therefore, all the Umbrians and Etrurians, of whatever origin, practised inhumation, the burying grounds which are called Etruscan ought to contain skulls of Umbrians and Etruscans together.

When Felsina also through the Etruscan invasion became Etruscan, and with Felsina its territory, the dead were inhumed in the Etruscan manner no matter to what nation they belonged. In fact in the period called Etruscan, tombs for cremation, characteristic of that period and of the preceding one, are not found at Certosa of Bologna. Here then the burying grounds ought to furnish us the osteological characteristics of the Felsinean Umbrians.

These considerations are sufficient to present the fact that from the Etruscan tombs of Etruria, and of the Province of Bologna, we may obtain certain knowledge of the physical characteristics of the Umbrians, as well as of the Etruscans, and that the Umbrians did not disappear nor have they disappeared even to-day notwithstanding historic changes.

Only one objection may be presented, and it is this: If in the Etruscan tombs Etruscans and Umbrians are found, how can we distinguish the one from the other? To this objection I shall give further on a satisfactory reply.

III.

Let us now pass to the examination of the human remains obtained from Etruscan and Felsinean tombs, and let us especially concern ourselves with cranial forms, which possess the most certain characteristics of human varieties as studied in their osteological characters.

With the old craniometric method, Nicolucci, Zanetti, Calori, and myself have found two cephalic types, elongated skulls corresponding to the dolichocephalic and mesocephalic craniums, and

¹ *Op. cit.*

short skulls corresponding to the brachycephalic craniums, distributed as follows:¹

CRANIUMS FROM ETRUSCAN TOMBS.			
Nicolucci	Long Type 12	Short Type 6	Total 18
Zanetti	" " 13	" " 4	" 17
Calori	" " 8	" " 1	" 9
Sergi	" " 7	" " 3	" 10
	<u>Dolichocephalic 40</u>	<u>Brachycephalic 14</u>	<u>Total 54</u>

or seventy-four per cent. dolicho-mesocephalic; twenty-six per cent. brachycephalic.

FELSINEAN SKULLS, OR FROM THE SO-CALLED ETRUSCAN TOMBS OF BOLOGNA.

Calori	Dolicho-mesocephalic 11	Brachycephalic 5	Total 16
Sergi	" " 7	" " 3	" 10
	<u>Dolicho-mesocephalic 18</u>	<u>Brachycephalic 8</u>	<u>Total 26</u>

or seventy per cent. dolicho-mesocephalic, or thirty per cent. brachycephalic. These figures show that the brachycephalic or short type is in the minority and oscillates between about twenty-six and thirty per cent. in Etruria and in Felsina, a little more than a fourth of the population, and that the long type of skulls oscillates between seventy and seventy-four per cent. But that tells us very little. In order to have a more concrete idea of the differences between the two types it is necessary to examine the cephalic forms according to the natural method, that is the shapes, and then we will be able to compare them with others that are found in other Italian and European populations.

As I have shown in a series of works, dolichocephalic and mesocephalic skulls include the cranial varieties denominated by their forms, ellipsoidal, ovoidal, pentagonal, and some other accessory forms. On the other hand, the brachycephalic correspond to the sphenoidal or large cuneiform, to the platycephalic, divided into several subforms, and to the spheroidal.

The Umbro-Etruscan population of Etruria and Felsina was composed, then, of two ethnical elements quite distinct and well

¹ To speak only of the studies published. The series of Etruscan skulls are very numerous.

determined, that is, of a type with skulls having an ellipsoidal, ovoidal, and pentagonal form, and which was in the majority; and of a type with platycephalic, sphenoidal, spheroidal skulls, which was in the minority.

This has been found to be the fact in the territory where Rome now stands. I have had the good fortune to examine twenty-nine skulls which belonged to the period which has been determined by archæologists to be in part anterior to and in part contemporaneous with the walls of Servius Tullius, that is to say, with a time which goes back to the beginning of Rome.

Among these twenty-nine skulls I have found only four which may be said to be foreign to the majority of the element dominating in the population, that is, a square platycephalic, a pentagonal platycephalic, and two sphenoidal. The other forms belong to the category dominating among the Etruscan and Umbrian, that is the ellipsoidal, ovoidal, and pentagonal.¹

To the anthropological observation may be added the archæological. Roman territory presents a fact almost identical with that of the Umbrian and Umbro-Etruscan territory, that is, there is found there, in an age anterior to the foundation of Rome, the funeral ceremony of cremation along with archæological objects identical with the Umbrian. But there is found contemporaneously also the custom of inhumation, that is to say, the custom there was a mixed one. This is a fact of great importance, because it indicates that the practice of cremation had not yet taken strong root in the entire population, as it had done in all Umbria.

We may admit, then, and with much certainty, that in Italian districts where is found the rite of cremation along with objects of the first age of iron, later, and in our case in the Umbro-Latin territory, the population having given up the custom, and turned to burying the dead, has shown itself to be composed of two different ethnical elements, distinguishable by means of the cephalic types, one of which was more largely represented than the other. In both

¹ See Sergi, *Studi di antropologia laziale*. Rome, 1895.

of the territories examined the two types are respectively homogeneous and reveal two different stocks.

Let us pass now to other Italian territories where the custom of burning the dead is not found in the most ancient times, that is, from the first age of iron to the bronze period.

Of these territories it is sufficient to mention the two most interesting and conclusive, Novilara near Pesaro, and Alfedena in Samnium.

In Novilara among forty-five heads which I have examined, I have encountered no type which suggested that already seen in Etruria, in Felsina and in the Roman territory as the minor element of the mixed population,—no sphenoidal, platycephalic, or spheroidal forms. The forty-five skulls were on the contrary all of the elongated type, ellipsoidal, ovoidal, and pentagonal, forms peculiar to the ethnical element which prevailed in Etruria and in Umbria, as well as in the territory of Rome.

Brizio who splendidly illustrates the discoveries of Novilara finds inhumation with special characteristics, that is, with folded positions of the body. He attributes those tombs to the Ligurians, who are only a branch of the great Mediterranean stock.¹ I am inclined to the belief that they belonged to the Pelasgians who were another branch of the same stock, akin to the Ligurians, and that the primitive population of Italy, excepting some small part, were Pelasgo-Ligurians.²

The other burying ground is that of Alfedena, the ancient Aufidena, perhaps, on the Sangro, to the east of Latium. This burying-ground is conspicuous both on account of its extent and also on account of its showing a succession of epochs. Its history appears to extend from the eighth to the fourth century before Christ. No sign of the rite of cremation has been found there.³ I have had a superb collection of thirty well-preserved skulls exhumed from that burying ground by Professor De Amicis. It seems as if I had chosen

¹ Brizio, *Il sepolcreto di Novilara presso Pesaro*. Rome, 1895.

² Sergi, *Origine e diffusione della stirpe mediterranea*. Rome, 1895.

³ Cf. *Notizie d'antichità e scavi*. Rome, 1895, 1897.

them myself in order to demonstrate my assumption. They all have the beautiful elongated forms, ellipsoidal, ovoidal, and pentagonal, like those of the type found among the Felsinean, Etruscan, and Roman skulls from the primitive age of the founding of Rome. There is not a single skull of the other type having a spheroidal or platycephalic form.

I could mention other burying grounds where the rite of cremation does not appear, and where the cranial forms found in them are of the same type as those of Novilara and of Alfedena. But I think the two mentioned, and studied by me directly, are sufficient to show that wherever in ancient times the custom of burning the dead did not penetrate, the type of population reveals only a single ethnical element; but, on the other hand, wherever that custom did penetrate there are found two ethnical elements with different characteristics, a fact which suggests that there must have been two human stocks intermingled.

IV.

After what has been said, the problem is this: To what stock do the dolicho-mesocephalic skulls with elliptical, pentagonal, and ovoidal forms belong, and to what other stock do the brachycephalic skulls with sphenoidal, spheroidal, and platycephalic forms belong?

Only a comparison with other populations of Europe can give the solution of this problem.

The brachycephalic forms above indicated are found among the Celts, Slavs, and the Southern Germans especially, while the others, or the dolichocephalic forms, are found among the populations of the Mediterranean, and hence among the majority of the inhabitants of Italy. Already the reader will have discovered for himself that if in the Italian burying grounds without ethnical mixture the type is one, and if in those with mixed type the dominant one is the same as in the first, the Italian must necessarily be the one which includes the elongated, pentagonal, ellipsoidal, and ovoidal forms, and the other must be a foreign type mingled with the former.

When could this second cephalic type, which suggests a people foreign to the Italians, have come in? Even here the reply is easy, and to obtain an indication of the time of their advent it will be sufficient to refer to the epoch of the Etruscan, Felsinean, and Roman burying grounds.

In order that the skulls of both stocks, the Italian and the foreign, should be mingled in the same Etruscan burying ground, it must be admitted that the ethnical elements which had these cranial characteristics inhabited that territory in an age anterior to the Etruscan occupation, that is, to the Umbrian rule, and this may go back to the tenth century, and even beyond the common era. The same thing may be said of the Felsinean and the Roman, because the two ethnical elements must have been fused without distinction or they would not have been buried indifferently in the same tombs. So, as before the Etruscan colonisation both formed one people, in the Etruscan rule they entered as elements of the Etruscan population.

We have still another proof that these ethnical elements foreign to the Italian stock entered in prehistoric times, and this proof is derived from the period of the burying grounds themselves in which these skulls were found. The Etruscan burying-grounds date from the seventh to the fifth century at least; those of Rome anterior to or contemporaneous with the Servian walls belong to the sixth century, and those of Certosa of Bologna to the fifth. That is, all are anterior to any historic invasion from the North, and therefore are earlier than the fourth century which is the epoch of the Gallic invasion. I have no need to show that the Etruscan burying-grounds of Bologna are anterior to the Gallic conquest, for Brizio among others has clearly demonstrated it.¹

The Italians therefore from their ethnology belong to the Mediterranean stock. In a prehistoric epoch there was an invasion from the North and the Northwest which reached only a little beyond the banks of the Tiber. This invasion was made by a people which had the physical characteristics of the Celts, and the Slavs, and

¹ Brizio, *Monumenti archeologici*, cit.

the modern Southern Germans, and differed therefore in their physical characteristics from the Italians. I do not hesitate to call this stock ARYAN, and therefore to affirm that the foreign skulls found in the Etruscan, Felsinean, and Roman burying-grounds are Aryan. *The Italians, therefore, anthropologically considered are not Aryans. The Umbrians, however, are Italians mixed with Aryans, but chiefly Italian in the proportional number of the population.*

If these are the facts which result from both archæological and anthropological researches, which are in full harmony, let us interpret them and reconstruct the history which is written only in the monuments and in the bones of the two different stocks; and of the latter the skulls especially, persisting in their forms, are the true mile-stones of the migrations of the people and of their relations.

The Mediterranean stock had invaded and occupied a great part of Europe, and Italy had already received among its first inhabitants two branches of the same stock, Ligurians and Pelasgians, while the Greeks had especially the Pelasgian. Other secondary ethnical elements were doubtless mixed with these two principal branches of the great stock, but in such a minority as not to be able to destroy the unity of origin. The Ligurians and the Pelasgians had common physical forms, and the differences being accessory it would be out of place to discuss them here. It appears that the whole peninsula including the valley of the Po was occupied by these first inhabitants who had a civilisation which was Mediterranean, the most developed part of which was oriental or Mycenaean. According to Flinders Petrie, Mycenaean civilisation was already flourishing sixteen hundred years before Christ.

Probably the northern region of Italy or the valley of the Po was less advanced, and Europe was in the neolithic or even the eneolithic age, the age of copper, as seems to be ascertained, when tribes of savage and barbarous people of a special physical type and furnished with arms of bronze, advanced from the East. They invaded Europe in various directions and drove away or conquered

the primitive inhabitants, according to the greater or less resistance met with.

The customs of these invaders were different from those of the first inhabitants. They burned their dead and preserved the charred bones in rude vases of earthenware. They were inferior in civilisation to eneolithic peoples who, with those of the preceding and therefore more ancient period issuing from the palæolithic were acquainted with writing, as is shown by the discoveries of Mas d'Azil,¹ by the sculptured stones of the dolmens and other monuments;² and they knew how to carve in wood, in bone, and in ivory with a skill which is wonderful for such a primitive age.³ They had a very beautiful ceramics. Probably these migratory tribes came from central Asia, but before they moved toward middle and central Europe they perhaps stopped in the most eastern part of Europe, that is in Russia, and from there, in groups more or less numerous, pushed on toward the West. We cannot know how much time they spent in their movements; but it is certain that in the various groups which they formed, these people in an indeterminate epoch divided into many branches, constituting nations distinct in language, in customs and in other features, according to local and regional conditions.

The first groups, to consider their ancient and modern geographical position, must have been those who afterward historically preserved the name of Celts; the second, a little later than the first, were Germans, who frequently mingled with them. A third group, the last to arrive, was that which afterward took the name of Slavs and was very numerous. We may call these three branches of one human family, Proto-Slavs, Proto-Germans, and Proto-Celts, since in that prehistoric epoch they did not have the modern or historical names, but they were doubtless the ancestors of the three modern branches which bear these names.

The invasions of these numerous and strong peoples covered

¹ Cf. Piette, "Les Galets colorés du Mas d'Azil." In *Anthropologie*, 1896.

² Letourneau, "Les signes alphabétiques du dolmen des Marchand." *Bulletin société anthrop. de Paris*, 1893.

³ Piette, "La station de Brassempouy." *Anthrop.* 1895.

an immense area in Europe. They invaded France, Great Britain, Germany, Switzerland, and other western and northern regions. They invaded Italy from the North, and all the Balkan region. Nor was the Iberian Peninsula spared. Any one who visits the prehistoric museums of Europe, those of Switzerland, Berlin, Prague, Vienna, and Trieste, and observes the archæological data discovered in the territory of the Celts, Germans, and Slavs, may obtain an idea of the civilisation of the stock called Aryan, which has a common fund of handiwork, together with the common custom of burning the dead, which shows a civilisation common in origin; but that this unity soon became a varied multiplicity on account of the regional and national developments of each people or part of a people.

The comparison of the civilisations above mentioned with that of the valley of the Po in Terramare and with that of Umbria show that both the first and the second are derived from a common Aryan, while in Umbria, the later development had another origin, as I shall show farther on. Hence I call this civilisation Aryan, as the archæologists also call it. But the manner of the introduction of this civilisation, and of the people who imported it, have not received a satisfactory interpretation, it seems to me, in the current opinion of philologists and archæologists. Anthropology with the archæological data may give a solution to this difficulty, and lighten up the obscurity which now reigns there.

The Aryans invaded Italy probably by two ways: by the central Alps and by the eastern Alps. From the North or through the central Alps came the Proto-Celts and occupied a great part of the valley of the Po down to Piedmont toward the West, and to the Province of Bologna toward the East, and occupied the pile dwellings, in whole or in part, especially those constructed upon the dry land known to-day by the name of Terramare. From the North-east the Proto-Slavs who before this movement toward Italy had occupied a wide territory toward the East, and these took possession of the region about Venice, establishing themselves on the borders of the Proto-Celts to the West and South of the province of Bologna. The Proto-Celts came in the pure bronze age. In

Terramare iron is not found and the primitive bronze is of the archaic forms.

That the invaders were the ancestors of the Celts in the valley of the Po, which includes Lombardy, Piedmont, and Emilia, is shown by the archæological fact of the Aryan civilisation, and the type of population which occupies it and has occupied it from prehistoric times.

The same may be affirmed of the Venetians who were also Aryans and Proto-Slavs with osteological features identical for the most part with the Celts and their ancestors. Hence it may be affirmed that the Aryan invasion in the valley of the Po was almost complete and brought there the civilisation along with the population.

But if the Italians, that is the Mediterranean races, were expelled more or less completely from the regions about the Po down almost to the territory of Bologna, at this place the resistance and the struggle between the Italians and the Aryans must have been greater. But the victory was with the Aryans, as was early shown by archæological and anthropological discoveries. They overthrew the Italians and founded Felsina, to-day called Bologna, or made it their principal settlement. The victory, however, did not produce the same effect that we see in the region of the Po, that is, the almost complete expulsion of the ancient inhabitants. On the contrary there was an Aryan rule with a fusion of two peoples, because, from the anthropological data examined, it is found that the Italians remained in the majority in the Umbrian population.

From Felsina the Aryans pushed on to the Adriatic on the one side, and on the other they passed beyond the Apennines and conquered in the same manner the population down to the right of the Tiber, which marks the borders of the Umbrian rule, but they did not stop there. They passed beyond it and attempted to extend their dominion. They occupied a few places, and one of their settlements was at Albalonga. Here have been discovered the remains of their civilisation with the funeral rite of cremation.

The name Umbrian is probably not Italian. The people of that name were derived from a part of the Aryans who invaded the

territory and became dominant. But it is a fact worthy of consideration that their civilisation greatly developed, and was superior to that of any other contemporaneous Aryan people, if we except Este and later Watsch and Hallstatt where is found a civilisation which seems to be one with the Umbrian or an uninterrupted continuation of that at Felsina, at Hallstatt, and in the valley of the Danube down to Bosnia and Herzegovina.



MAP OF THE FIRST IRON-AGE—VILLANOVA-HALLSTATT.

If we recall the anthropological characteristics of the population which extended from the valley of the Danube toward the West in Carinzia, in Carniola down to Venice in Italy, we must admit that in origin they belong to the Proto-Slavs, or Illyrians according to the historical ethnical name. If we remember that the Venetians in the region of the Po, which they occupied, were a very ancient colony we must necessarily affirm that besides a Celtic

current in Italy there was one from another Aryan branch, that is the Slavic.

If then we think that the civilisation of Felsina, so rich, had continued more in the Slavic zone than in the Celtic, and that in spite of the relations with that of the Terramare both seem distinct and independent, we must still admit that the people of the Terramare remained stationary down to their conquest, first made by the Umbrian and then by the Etruscans. It is not possible to think, as Pigorini believes, that the people of the Terramare abandoned their territory and their settlements after they had settled there. Probably he is induced to make this supposition, which Helbig also makes, by the fact that he sees that these people made no progress while the Umbrians were at the height of their civilisation. The people of Terramare remained separated and isolated in the movement of Aryan and Mediterranean civilisation, when these met and resulted in the great development of the Umbrian civilisation. They then scattered, were lost in the obscurity of primitive history or overcome by more advanced populations down to the Gallic invasion.

There is no doubt that the great evolution of the Umbrian civilisation and of that beyond the borders of Umbria, at Este, at Watsch, and at Hallstatt, was due to the influx of the Mediterranean civilisation. Without these Italy with the rest of Europe would have remained in barbarism. Because, as it is easy to show, the neolithic, and even the eneolithic civilisation of Europe, was much superior to that imported by the Aryans. This is shown by the use of writing known in Europe before the neolithic age, and by the very fine ceramics, and by the art of carving in ivory, in bone, and in wood.¹

The Aryans on the contrary plunged the people of Europe, and even those of the peninsulas of the Mediterranean, into the darkest barbarism, and they would have remained there if the new currents from the East of the Mediterranean had not brought at a

¹ See the discoveries, referred to above, at Mas d'Azil, at Brassempouy and elsewhere.

later period other civilising influences. This fact demands a fuller demonstration than can be given here and this I mean to furnish in a later publication.¹

The Umbrian rule would have extended itself still more toward the South to Italy, and would probably have occupied the whole of Latium if Etruscan civilisation had not come in to interrupt the progress of Umbrian expansion. As has already been said, the Etruscans occupied Mediterranean Umbria and very much reduced the Umbrian territory. They changed the civilisation for the most part, introducing their own, restored to the Italians their funeral custom of inhumation, and finally destroyed the Umbrian power by the invasion and occupation of Felsina.

The Etruscans, as is shown by my anthropological researches, were also a branch of the Mediterranean stock, eastern Pelasgians, inhabitants of Western Asia, with a civilisation much advanced with oriental institutions and characteristics. Their physical characteristics are therefore those of the Mediterranean stock, of which the Italians are a branch. For this reason it is impossible to distinguish their skulls in the Etruscan and Felsinean tombs from those of the Italians, which have the same forms. I have Etruscan skulls from Cere and from Orvieto which are typically identical with those from Alfedena and Rome. If then in the Etrusco-Felsinean burying grounds there are two ethnical elements, as has been seen, the one Aryan and the other Italian, the latter is not different from the Etruscan. This does not disturb in the least our previous demonstration.

The colonisation had various effects among which was disaster to the Aryan rule in that region, which was then Umbria, and an extraordinary effect upon the civilisation and dominion of the truly Italian element. Because that part of Latium which had been already invaded by the Umbrians was freed from the Aryans by the Etruscan invasion from the North, and was free forever.

Hence it happened that that nucleus of races had already felt the Aryan influence, and afterward the Etruscans, freed from for-

¹ This will be published under the title of *Aræ e Italici*.

eign rule, founded Rome, upon the left bank of the Tiber, as a bulwark against invasions and the dangers threatened by a new power which was substituted for the Aryan, that is, the Etruscans collected on the right bank of the Tiber, who had not delayed in conquering Latium as they had conquered Western Umbria, and afterward the region beyond the Apennines.

With the origin of Rome the Italians acquired an independent state, extended themselves into Latium, destroyed the rule of the Etruscans, with whom they soon entered into conflict, and created the Latin civilisation which is truly called Italian. The earlier people, the Aryan or Umbrian, and the Etruscan, were foreign. It is true that the Aryan civilisation contributed something new, but it was more the Etruscan civilisation which brought new influences and elevated the Italians of Latium to a superior rank. But both civilisations were importations of foreign peoples. The Latin civilisation rose above them and with its own very marked characteristics from which emerged the peculiar grandeur of the whole Mediterranean civilisation.

This appears to me to have been the general history of that people which is called Italian, and of the so-called Aryan civilisation. It is shown directly and clearly by archæological and anthropological facts.

From this history there may be obtained another interpretation of the origin of the Italian languages with the Aryan inflection, that is, the Latin, Umbrian, Sabellian and other languages were transformed into Italian by the influence and domination of the Aryan. But that does not make Italians of the Aryan people who came into Italy with a language already formed, as is admitted by philologists. It might be shown that the same phenomena happened in Greece which was transformed by the Aryan invasion. This is clearly shown, if it is true that the primitive Aryans were a people divided into three principal branches which to-day bear three ethnical names.

Thus we have arrived at the establishment of the facts that the Aryans were represented in antiquity by the ancestors of the Celts, the Germans, and the Slavs; that no Italian people and no Hel-

lenic people were among the Aryans; that the Aryans were foreign to Italy, a stock different in physical features; that the Aryans were not the creators of the two great classical civilisations, the Latin and the Greek, because they were barbarous and inferior to the people of Italy and Greece; that their greater influence was exerted in transforming the languages spoken in the two nations and not upon the civilisation. The civilisation was Mediterranean, a civilisation which for the third time became dominant in the Basin of the Mediterranean in Europe.

G. SERGI.

ROME, ITALY.

The law of physical adaptation to environment observed in the evolution of animals is gradually repeated in the case of man by the adaptation of the law of culture. For example, man is not adapted to a cold climate by the development of a protective covering of hair, but he invents sheltering clothing, and finds so that the environment is a factor in the evolution of his mental rather than of his physical characteristics. Man does not develop webbed feet or fins to live in a watery place, it is possible to enumerate a catalogue of such conditions which occur almost everywhere and in every case.

THE EVOLUTION OF RELIGION.

I. THE HUMANITIES.

SINCE THE DAYS of Linnæus the classification of plants has progressed at an ever increasing rate until the world has been ransacked for vegetal forms. Since the days of Cuvier systematic zoölogy as classification has progressed in a like manner. The success attending efforts early stimulated the students of mankind to engage in the same method of research, so that men were studied as animals for the purpose of classifying them. This enterprise has enlisted the labors of many men and instigated a vast system of anthropologic research by which there has been developed a great body of literature relating to the anatomy and physiology of men, while science has been enriched thereby; but the classification of men into races has made no progress. No one table of races receives universal assent or commands any large following.

It is now evident that the task is impossible. Human evolution does not result in the differentiation of kinds of animal men, but in stages of intellectual growth. The further men are traced into antiquity, the more diversified they appear as animal forms. Had the laws of evolution pertaining to animals remained efficient, and had not these methods of culture been developed, the human species which primordially exhibited varieties pretty well distinguished, would have continued in this development until distinct species were found; but culture results in the admixture of streams of blood, so that the earlier varieties of mankind are now so blended by intermarriage that the ancient varieties are thrown into inextricable confusion, and there results a re-unification of mankind as one species.

The law of physical adaptation to environment observed in the evolution of animals is gradually repealed in the case of man by the substitution of the law of culture. For example, man is not adapted to a cold climate by the development of a protective covering of hair, but he invents shelter, clothing, and fire; so that the environment is a factor in the evolution of his mental rather than of his physical characteristics. Man does not develop webbed feet or fins to become a denizen of the water, but he invents a boat and sails in a winged palace. It is possible to enumerate a catalogue of such conditions which seems almost endless; and in every case where environment is productive of distinctive physical characteristics in the lower animals, it is productive of intellectual characteristics in man. It therefore may be affirmed that while the lower animals are adapted to environment, man adapts the environment to himself. It is thus that the study of human evolution is resolved into the study of culture.

While the science of ethnology remains as a study of the anatomy and physiology of men in multitudinous varieties which do not admit of classification but only of characterisation by extreme types, a new science has been developed in the study of the characteristics of culture found among the various tribes and nations of the earth. This science I call *Demonomy*, or the science of the Humanities. Logically this science is divided into five departments, as follows:

First. Art, which is developed as human activity for the purpose of obtaining pleasure.

Second. Industry, which is developed for the purpose of promoting welfare.

Third. Government, which is developed for the purpose of establishing justice.

Fourth. Language, which is developed for the purpose of expressing thought.

Fifth. Education, which is developed for the acquisition of knowledge.

These five humanities are co-ordinate, correlative, and interdependent. If a pleasure is pursued that does not insure welfare,

it turns to pain. If welfare is pursued that violates justice, it ends in injury. If justice is pursued on the evidence of those who are false, injustice is done. If the truth is sought from men who have not the knowledge, error will be found. Finally, if knowledge is sought and error found, knowledge, justice, welfare, and pleasure fail. Truth is the word of knowledge, justice is the act of knowledge, welfare is the reward of knowledge, pleasure is the enjoyment of knowledge. This is the solution of the problem of ethics. Ethical conduct is not built on pleasure alone, nor on welfare or utility alone; nor is it founded on any single principle, but it has a pentalogic basis in pleasure, welfare, justice, truth, and wisdom. He who travels the righteous way must have a five-fold purpose in indissoluble unity.

The humanities require further characterisation. There are five classes of fine arts: Music, Graphics (as sculpture and painting), Drama, Story, and Poetry. The science of welfare or industry is the science of Technology. It is divided into Bioculture, Mining, Manufacturing, Transportation, and Exchange. The science of justice or institutions is the science of Sociology, divided into Statistics, Economics, Civics, History, and Ethics. The science of expression or language is Philology. There are five kinds of language,—emotional, gestural, oral, written, and conventional language, or that language which is devised in the arts and sciences for special purposes, as mathematical symbols, chemical symbols, etc. The activities which are pursued for knowledge and by which opinions are developed give rise to education, as, first, the cultural instruction derived from social industry; second, the accultural instruction of parents, kindred, and society; third, scholastic education; fourth, publication; fifth, scientific research. All of these activities are indissoluble in their results, for when one of the five purposes is pursued unwisely the common goal is not gained, and they are also bound together by other ties. The pursuit of art becomes an industry, as when men make music for others for compensation. The pursuit of welfare is always accompanied by the pursuit of pleasure. This gives rise to Ambrosial pleasures in catering to the palate, to decorative pleasures in form and color, to

competitive pleasures in physical and intellectual gain, to the pleasures of ambition in government, to the pleasures of rhetoric in speech, and to the pleasures of learning in education, while the conduct of institutions and education becomes industries.

We have divided each one of the five activities into five groups, and every one of the twenty-five may in like manner be subdivided. For present purposes civics, or the science of government, must thus be subdivided into constitutive, legislative, executive, operative, and judicative government. The science of constitutive government treats of the constitution of tribes and nations; the science of legislative government treats of laws and the making of laws; the science of executive government treats of the enforcement of laws; the science of operative government treats of the industries carried on by the government, as in education, postal operations, etc.; while the science of judicative government treats of the adaptation of laws to individual cases by interpreting and applying them as principles.

It has already been stated how the law of adaptation to environment is transformed by man into the law of the adaptation of environment to man. The survival of the fittest, which is the chief method of evolution in the plant realm, depends on the enormous multiplication of individuals when but few can survive; but this law applies to mankind only in a subordinate manner, because the rate of multiplication is so greatly diminished that the method becomes comparatively inefficient. The action of the law of effort, which is the fundamental method of evolution in animals, is transformed by man into the law of culture, thus making mental evolution take precedence of physical evolution.

Having failed to classify mankind as races of animals, we still find them grouped as tribes and nations into states which take rank in culture. The tribes are of two radically distinct kinds, and the nations also are differentiated into two more or less distinct kinds. The tribes are called savages and barbarians, and the nations are sometimes said to be civilised and enlightened. For reasons which cannot here be set forth for want of space I shall use the terms monarchy and democracy instead of the terms civilisation and

enlightenment. We therefore have four kinds of people living in four stages of society, which we call savagery, barbarism, monarchy, and democracy. It is proposed briefly to set forth the characteristics of these four kinds and stages of culture by describing the humanities in each, and their pursuit by religious agencies. Hard and fast lines cannot be drawn, for the higher is always evolved from the lower.

In religion the humanities are considered as superlatives; pleasure is beatitude, welfare is blessedness, justice is righteousness, expression is truth, and knowledge is wisdom. Then the superlatives as good have their antitheses as evil. Good and evil as boon and bane are considered as gifts from unseen beings in an unseen world. In moderate and common degrees good and evil are the results of human conduct, but in superlative degrees good and evil come from gods. Religion, then, is a system of activities to obtain beatitude, blessing, righteousness, truth, and wisdom, as the chief good by enlisting the good offices of unseen beings in the unseen world. The activities of religion are therefore coextensive in purpose with the humanities, but are held to be of supreme importance.

II. SAVAGERY.

The activities of savagery designed for pleasure are mainly (terpsichorean, but people in this stage also have ambrosial, decorative, and competitive pleasures. Ambrosial pleasures give rise to many feasts; decorative pleasures give rise to many strange costumes—to painting, tattooing and mutilating the body, and to the decoration of all the products of their industrial arts. Competitive games are many, both athletic and divinitive; while such games as cards, drafts, and chess are games of skill in modern culture, they are games of divination in savagery. Music is rhythm. Sculpture in wood, horn, shell, bone, and stone produces only painted totemic images. Drama is the thaumaturgic representation of the myths of mythology. Poetry is exclamatory song with rhythm marked by musical accents. Savagery may be called the age of rhythm, for it is the chief characteristic of the music and dance of the people.

The industries are hunting, fishing, and fruit and root gather-

ing, while in the last stages of savagery petty agriculture is practised. There is a great variety of mechanical industries in the utilisation of the materials of the environment for shelter, clothing, and food. From the manufacture of stone tools savagery is known as the age of stone.

The governmental institutions of savagery have peculiar characteristics. The family as it exists in civilisation consists of parents and children, with such other members as the exigencies of life determine; but families are again regimented into higher groups, and every household or family is divided, for the husband belongs to one group, while the wife and her children belong to another; these groups are called clans. The husband belongs to the clan of his mother, while the wife and her children belong to the clan of her mother. For clan regimentation, therefore, the people are grouped by female descent. There may be from ten to twenty or more clans in a tribe. The man cannot marry in his own clan, but must marry a woman of some other particular clan. Sometimes the right and duty is less restricted and may be extended to two or even more particular clans, or may even be unrestricted as to other clans. The clan is usually given the name of some animal or other object of nature, and this is known as its totem. This totem becomes a deity. The members of the clan all take names from some kind, characteristic, or myth of the totem. The clan is governed by an elder man, and the members of the clan call one another kinship terms; but two words are used for brother, one as elder brother, the other younger brother, and two words for sister, as elder sister and younger sister, and there are elder cousins and younger cousins; so that in addressing another person by a clan kinship name relative age is expressed and superior age always gives authority. In speaking to a person in the clan it is unlawful to use any other name than this clan name by which authority is claimed or yielded. A group of clans constitute a tribe; thus the clans are bound together by ties of direct affinity and remote consanguinity. The chief of the tribe is the elder man of the elder men of the tribe; age, however, is not only natural but conventional, for men are promoted in agheship for superior virtues by a

system of elections in the clan council and also in the tribal council. Tribes are sometimes united into confederacies, and these tribes are by convention in council assigned to particular forms of kinship; they may be brothers, elder and younger, or they may be father and son, or they may be grandfather, father and son, uncles, nephews, and grand-nephews; thus they become kindred by legal fiction. Promotions are made in the confederate chieftaincies by the confederate council. There are diverse methods of organising the council, choosing war parties, and selecting war priests. Savagery is the age of the clan.

The language of a savage tribe is so foreign to the ideas of an English speaking people that an intelligent account cannot be made clear in brief, and this statement must suffice. The sentence is imperfectly organised from the fact that the parts of speech are imperfectly differentiated, but a word usually resembles an entire phrase or even an entire sentence; for example: *to kill with a stone a man who is lying on the ground while the slayer is standing*, may all be expressed in one word. This method of speech is called holophrasm, and savagery is the age of holophrasm.

In education we find the characteristics of most importance for the present discussion; for the influences of the deepest significance in savagery are those which arise from mythology and the teaching and practice of religion, for theology is mythology and teaching is instruction in religion. The supreme beings are animals, so in savagery mythology is zoötheism. Savages do not worship the existing animals, but have a notion that they are descended from primordial animals far superior to those now existing. They worship the sun, moon, and stars, but suppose them to be zoömorphic and often teach that they were formerly denizens of the earth transported to the sky for various mythologic reasons. In affirming that the gods are zoömorphic it must be remembered that the plane of demarkation between men and the lower animals is not conceived as existing in the same sense as in modern times, for the animals are supposed to have powers in many respects superior to men. One species has exalted power of a particular

kind, another of another kind, and every one has some power superior to that of man.

They also believe in the magical transformation of animals from one kind into another, and of this power man himself partakes. In the beginning all tribes, for they speak of animals as tribes, had this wonderful power of transformation in a superlative degree, from which they have degenerated so that now there are but few individuals arising from time to time that have the ability to perform this feat. Certain inanimate things are supposed to have been animate and to have been transformed into rocks, hills, mountains, plants, or celestial bodies. The sky is a solid dome; with some tribes it is ice, and with others it is rock crystal. All savage tribes believe in seven worlds, or regions; this world, the east, the west, the north, the south, the zenith, and the nadir. The people of this world originally came from some one of these outer worlds, usually the nadir; and magical people, as some great priests, can visit these worlds, and many of their myths recount these journeyings. The winds are the breathings of beasts inhabiting the cardinal worlds and sometimes visiting this. They have no knowledge of an ambient air. Thunder is the cry of birds, lightning flashes are serpents, usually the rainbow is a serpent; the rain from the zenith is explained in many ways,—sometimes as the abrading of the ice of the zenith.

Religious worship is the invocation of these gods to procure benefits and avoid evils. In arid lands the chief blessing sought is rain as the bringer of harvests; in humid lands the prayer is directly for bounteous fruits. All disease is the work of witchcraft, to a slight extent of human witchcraft, but mainly of animal sorcery, and particular diseases are referred to particular animals; thus one disease is called the deer disease, one the turkey disease, one the spider disease, and another the fly disease. So the diseases are parcelled out among the animals. The treatment of disease is always by sorcery. Should a man fall on the cliff-side and break his arm, it would be attributed to a "rock rover," who caused him to stumble. A child bitten by a rattlesnake is treated by placing

the rattlesnake beside it and with various ceremonies invoking the heart of the rattlesnake to return from the child to the serpent.

The methods of worship are innumerable in their details and diverse in their special characteristics from tribe to tribe, but the same principles are found in them all. The priests are always a special class, and the people are all organised into societies presided over by priests who have charge of special ceremonies designed for special purposes, and have charge of special medicines which are always administered ceremonially.

The religious ceremonies are long, and with every tribe a number are performed at intervals through the autumn, winter, and early spring. Through the year there are many four- or seven-day periods intended to provide for harvests and game, with a fast and a festival. In the dramatic ceremonies the priests and their assistants personify the personages of their mythology, and wear masks or other insignia to represent such characters. The paraphernalia of the altar, which is usually within some kind of a lodge or kiva, is very elaborate. The personages represented by the actors are also represented by carved images in stone or wood, or sometimes painted on bark or on the skins of animals. Vases of pottery contain holy water; curious and beautiful crystals are collected, especially in arid lands, to represent the color and hardness of well-matured corn. The feathers of birds are used in many ways to decorate the altar, but always having some mysterious symbolism. The dramatic performances represent scenes in the mythologic history of the tribes and of the gods whom they worship, interspersed with many harangues by the priests instructing the people in mythology and religion. From time to time terpsichorean performances are introduced, and a half of the time for the four or seven days may be occupied with music and dancing, but the whole ends with a great festival.

In savagery the fundamental opinions are mythologic, the gods are zoömorphie, and worship is terpsichorean.

III. BARBARISM.

Peoples in the barbaric state have music in the stage of melody. Painting takes a step in advance, for in savagery it represents the outline of the object wholly flat, while in barbarism relief is found. Drama makes an advance, especially in dialogue. Story has mythic heroes, but they are power-gods, and poetry is developed from the chanting of exclamations to the stage of song adapted to melody, and is often alliterative.

In industries agriculture is more highly developed, so as to furnish food for men and animals, and animals are domesticated. Manufacturing is advanced to a higher stage by the development of tools made of bronze. In clothing the skins of animals are utilised only to a small extent, while the hair and wool of animals and many vegetal fibers are wrought into fabrics. The improvements in tools make possible a decided advance in architecture, and men no longer live in houses covered with bark, boughs, and rude thatch or in chambers excavated in tufas and friable rocks, but they build houses of wood and stone usually covered with boards made by riving trees or by deftly woven thatches, though rarely houses are covered with dry and indurated mortar.

The advance in institutions is more important in this consideration. The development in bioculture, in the cultivation and the domestication of animals leads to an accumulation of wealth, and with it there are beasts of burden and a great exchange of wealth from tribe to tribe results; then the more peaceful life of savages becomes the more warlike life of barbarians by the greed for plunder on the one hand and by the development of warfare through the utilisation of bronze. Gradually tribes become nomadic at certain seasons in search of pasture for flocks, and to extend the field of plunder. With these changes constitutive government is changed. When clans move from place to place in search of better ground to cultivate, or larger streams to use in irrigation, or larger fields for the sustenance of animals, wives and children must go with husbands and fathers and no longer remain under the control

of brothers, maternal uncles, and grandfathers, but come under the control of husbands, fathers, and paternal grandfathers. There are other agencies at work at these changes in religion, which for present consideration may be neglected; but finally the result is to transform the clan into the gens, a group of persons reckoning consanguineal kinship in the male line, and the children follow the gentile descent of the father instead of the clan of the mother. The chief of the gens is still the elder man of the clan in years or by legal fiction. The patriarch clothed with family and gentile power is also the owner of the gentile property, especially when it consists of lands, flocks, and houses. With a large number of persons and a large accumulation of property he has the means of enforcing authority unknown in barbarism, but the gens may unite with other gentes into a tribe, and these tribes may again unite into confederacies. The motive impelling the union of gentes into tribes is peace, and the bond by which they are held is the marriage tie.

In the 34th chapter of Genesis there is recorded a proposition to organise a barbaric tribe:

"And Hamor the father of Shechem went out unto Jacob to commune with him. . . .

"And Hamor communed with them, saying, The soul of my son Shechem longeth for your daughter: I pray you give her him to wife.

"And make ye marriages with us, and give your daughters unto us, and take our daughters unto you.

"And ye shall dwell with us: and the land shall be before you; dwell and trade ye therein, and get you possessions therein."

There is a method of regimenting clans within the tribe which is developed rather late in savagery and which becomes of paramount importance in barbarism, for the priestly or ecclesiastical societies now play an important rôle. The people of the clan are divided into these societies which they voluntarily join for the purpose of being initiated as priests or assisting as devotees. Gradually the ecclesiastical societies become organised and consolidated on a schematic plan founded on the mythologic worlds or regions. The persons who belong to the north-world region constitute a north-world brotherhood, and in like manner each religion has its brotherhood. This is the origin and significance of the phratries

found in barbaric society. The phratry is an intermediate unit between the gens and the tribe; the phratries being gentes primarily organised by worship on the scheme of the seven regions. In barbarism the five units of regimentation, namely, the family, the gens, the phratry, the tribe and the confederacy are usually kept distinct, and the governmental functions well differentiated, though in the tribe and confederacy chiefs may be derived from the gens and also from the phratry and often, perhaps usually, the chief of the phratry is also chief of a gens, the two offices being united in one person. The priestly brotherhood play an important part in barbaric society and continue their influence in the next stage, and are even continued under a changed form to the present time.

The zoötheistic religions of savagery become physitheistic in barbarism, often without even changing the names of the gods, but always changing their attributes. The celestial gods take on anthropomorphic forms and become leading personages in the pantheon as great powers in nature. The sky itself is personified as a deity and the beast-god of the wind becomes the man-god of winds, the beast-god of rain becomes the man-god of rain, the beast-god of thunder becomes the man-god of thunder, the beast-god of lightning becomes the man-god of lightning, the serpent of the rainbow becomes the man-god of the rainbow, and other zoömorphic personages become powers with human forms. This is the stage of theism so well described by Max Müller and exhibited in the most ancient records of India, Egypt, Greece, and Rome. Hesiod has told of these gods and Homer sings their praises.

In savagery there are many deities of merriment, jest, and cunning, which live on to barbarism, but quite a new class slowly appears as gods of evil who bring hurricanes, floods, frost, and fire, and to whom other great disasters are attributed. In this new form the principal deities are organised into a tribe over which a chief presides and mythology largely becomes the history of a tribe of deities with many incidental personages from the lower grades of supernatural beings, but the home of the supreme deities is fixed in the zenith from which the members of the tribe journey to other regions.

The terpsichorean worship of savagery wanes in barbarism and the dramatic worship is more highly developed, while the insignia of the altar are multiplied and the drama becomes more conversational and poetic. A new system of deities appears in the pantheon and a new system of worship is developed. The totemic deities of the clan are now replaced by ancestral deities of the gens; thus ancestral worship itself originates, and it finally becomes the duty and the delight of the household to keep up ancestral worship in many ways, especially in the preservation of the ancient fire of the home.

In savagery there is a system of oblations which at first appear to be symbolic and mnemonic as suggesting to the deity the nature of the blessings for which prayers are made; thus, minute quantities of food and drink are placed on the altar, or representatives of these things are painted on the shrine or represented in other ways, while ears of corn and other forms of food are exhibited, jewels are shown, and the gods are asked to supply like things. Oblations are made at meals and on many occasions. Gradually the quantity of these offerings is increased until at last it becomes a sacrifice. In ancestor worship these sacrifices are especially noticeable, and they finally become gifts to forefathers who are supposed to use them in the zenith world. Finally the worship at the hearth becomes equal in importance to the worship in the kiva, and the worship by sacrifice becomes the fundamental worship in which piety is measured by sacrifice. More and more the patriarch becomes the teacher and gathers the gens about him, while subordinate families assemble for instruction by households. Gradually also the myths are wrought into crude poetry and taught in this form, while the precepts of religion are coined into verse with many maxims of right and duty. While in savagery the gods were induced to give boon for pleasure as they were supposed to enjoy the terpsichorean ceremonies of the clan, now they are solicited by offerings to promote their welfare. Still the idea of sacrifice remains uppermost, and from sacrificing food and drink in hecatombs of beeves and jars of wine the gifts become human lives; first of enemies captured in battle, then of individuals of the tribe who have of-

fended, and finally of the best beloved sons and daughters. Barbaric worship is sacrifice.

In the tribe five kinds of worship are ultimately recognised: The worship of the family, the worship of the gens, the worship of the phratry, the worship of the tribe, and the worship of the confederacy. In the family the altar is the hearth about which there are special places for the paraphernalia; in the gens the worship is at the hearth of the patriarch, and it may absorb all the worship of subordinate households; in the phratry the worship is in the kiva or pyrtaneum; later there may be a kiva for the tribe and still another for the confederacy; and finally when confederacies dwell in cities the great kiva becomes the temple.

IV. MONARCHACY.

In monarchacy music is developed to the stage where harmony is recognised. In graphic art linear perspective is observed. In drama the theme is magic, the actors supernatural beings and human puppets. Story has the same theme as drama; in poetry also the theme is magic, and it often takes the form of rhyme.

Bioculture is more highly developed; but that which is most important to note is the development of manufactures in the utilisation of iron, so that it is often called the iron age. Architecture is more highly developed both in the homes of the people and in the homes of the gods, and the kiva of primal society becomes the temple of civilisation. In savagery transportation by water is in canoes hollowed out of tree trunks, or in boats of skins or fashioned of other materials and propelled with paddles. In barbarism oars were added. In monarchacy sails are hoisted, and men journey far from land, and a great commerce is developed.

The introduction of iron weapons changes the nature and methods of warfare. Militancy is no longer a succession of raids for plunder and fancied revenge for mythologic injuries, but is systematic conquest that peoples may be reduced to slavery as the servants of the conquerors, or reduced to dependencies for tribute giving and supplies of soldiery. In savagery there is a form of slavery which is adoption into the family and clan, when the cap-

tive takes rank in the clan from the date of his adoption as children born in the clan take rank from birth. This form of slavery is continued in barbarism, but with important modifications, for sometimes promotion becomes impossible; but in monarchacy the slave belongs to a lower caste from which he cannot rise, and usually is attached to the soil as a realty. Late in monarchacy the slave becomes a chattel.

Now, we must consider the origin and the nature of monarchacy. We have already found the confederacy to be a group of tribes organised by kinship as a legal fiction; but in barbarism the tribes are thus scattered in towns, while in savagery the clans may be scattered in villages or hamlets, but when confederacies unite to live in a walled city monarchacy is born. Superior tools lead to superior architecture, and superior architecture leads to the erection of superior defences, and superior defence masses the people in cities. Then cities become workshops, and the products manufactured become goods, and goods become cargoes, and the mariner journeys afar for trade, and a world-wide barter brings the products of all lands to every city. Cities grow and become powerful in number and wealth. Weaker cities are conquered and made provinces; tribes also are conquered and their countries made tributary provinces. A few of the conquered peoples are made slaves, especially the poets and other artists and the artisans, while some of the common people are taken as laborers to toil on pyramids, temples, mausoleums, city walls, and viaducts, or to drain swamps and cultivate fields. The people of such a city for a long time retain distinct tribal, phratral, gentile, and family government; but propinquity, a common language, common employments, and common interests unite to break down the barrier of gentile incest, and incest itself is expressed in degrees of consanguinity and sometimes of affinity. When streams of blood are so intermingled that gentes can no longer be traced, the people are no longer regimented by affinity, and artificial regimentation by territorial boundaries takes its place. But the kinship method of regimenting people is never wholly lost in monarchacy, but remains within a small number of people who aspire to be rulers and who often are the actual rulers.

Thus a ruling class is preserved. A second class arises through the phratral organisations transformed into ecclesiastical bodies, and the priests are privileged. War has now developed, when it may be conducted on a vast scale for the conquest of provinces, and a warrior class springs up, the leaders of which also become a wealthy and privileged class. Thus we have the three estates. Now the artisan class is differentiated by trade, and a system of guilds is developed. The laborers on the public works and the people who are engaged in agriculture remain as nondescript bodies from which all the classes, so-called in the three estates, and the guilds hold themselves socially aloof. There is an attempt to make all of these classes hereditary, but it ultimately succeeds only with the ruling classes, for when war comes the peasant may fight as well as the king and success in war brings honor and promotion. The priestly class is not even able to keep its members within itself, for new leaders and teachers spring up to establish new societies with new priesthoods. Some in the guilds attain great wealth and can command position in one or other of the three estates, while many in the guilds fail and become mere laborers or even outcasts.

The monarchy thus begins by the settlement of a confederacy in a walled city, extends by annexing tribute-paying provinces, and finally assumes the ultimate form of national organisation; and the provinces are not considered as subject provinces, but the whole territory of a monarchy is divided into districts with a more or less equal government for every one, and equal rights and duty pertaining to all but modified by rank.

In the city-state the people speak a common language, but often the provinces speak diverse languages. The form of language in this stage is inflectional.

Education becomes something more than instruction in mythology and religion, for a new discipline is early developed and a new body of learning, usually called philosophy, is its theme. The purpose of this philosophy is the explanation of the properties of the bodies of the universe, which are confounded with qualities, and the latter name is usually employed in their designation. An

attempt is always made to reduce all properties to one and thus to explain the universe as monistic. Five stages of this philosophy appear in succession: the Pythagorean philosophy, where the properties are explained as numbers; the Platonic philosophy, where the properties are explained as forms, so that even ideas are called forms (the Greek word *idea* originally meant form); the Aristotelian philosophy, in which all properties are explained as forces; the Scholastic philosophy, where all properties are explained as being or existence; and the Idealistic philosophy, where all properties are explained as ideas. In this stage the schools are organised for the purpose of teaching philosophy and all the ancient and venerable universities of civilisation have this origin.

Gradually a belief in the cardinal worlds is abandoned, but a heaven above and a hell beneath are retained.

The phisitheism of barbarism is transformed into psychotheism, and the deities have psychic attributes, though to a large extent the names of the deities remain the same. Thus there is a god of war, and a god of love, a god of agriculture and a god of commerce, a god of hunting and a god of fishing, and in like manner the chief psychic attributes of mankind and the vocation which they follow are all represented by deities in the pantheon. At first the gods constitute a tribe, then they inhabit a city which is above on some mountain like Olympus or in the sky. As time goes on the constitution of the tribe of deities is changed, and the supreme deity is exalted more and more until a qualified monotheism is established.

Worship changes and terpsichorean ceremonies are gradually abandoned, sacrifices are continued, but modified and ameliorated, becoming symbolic. Ceremony is refined and becomes a vast system of symbolism, so that worship becomes highly poetical. Gradually a new element is added to religion, and at last becomes its chief characteristic. Gods who were supposed to be pleased with dancing and then pleased with oblations are now supposed to be best pleased with opinions, and to be worshipped in spirit and in truth through creeds that work their effects in the hearts of men impelling them to righteous conduct. Religion is fiducial, and men

are held to be pious who acknowledge God in all their ways. Another change comes, for men pray less for present blessings and more for blessings in the future world.

The crime of crimes in savagery is witchcraft, in which it is supposed that the gods are induced to do evil to men. This crime lasts on through barbarism and is punished with still greater rigor; it still continues in the third stage and those who practice it are condemned to death. In barbarism the crime of blasphemy is developed, consisting in the omission of rites or in acts of disrespect. This also appears in the third stage. In monarchacy yet a new crime is developed, for creed now becomes essential and the heretic receives more horrible punishment than the witch or the blasphemer.

During the stage of monarchacy six great religions were developed: Judaism, Confucianism, Hindooism, Buddhism, Islamism, and Christianity. In all these religions the priests are propagandists and desire to make their doctrines universal. The great majority of the peoples of the globe are worshippers in one or another of these systems, but there are a few followers of Zoroaster and of Lau-tsze, a few barbarians, and a few savages. Idolatry has never been a religion, but in all the three stages idols are found as insignia of shrines.

V. DEMOCRACY.

Democracy has existed as a dream since the palmy days of Greece and Rome, but only as the equal rights of individuals in a class while the classes are in hierarchies. In a better form it was first established in the little republic of Switzerland. The principles on which genuine democracy rests have their origin in the development of modern industries, and the discovery of the New World may be taken as a convenient date for the beginning of this period.

Now, music is not only rhythm, melody, and harmony, but it is also symphony as a succession of rhythms, melodies, and harmonies. To graphic art is added a new element in aerial perspective. Drama represents the doings of men rather than of mythical

heroes. Story is the tale of human life, and the chief themes of poetry are the beauties of nature, the charms of simple life, the tragedies which spring from error, the triumphs of truth, and the boon and bane of love.

In this stage human slavery is gradually abolished, and the powers of nature are enslaved. The places of the stars are fixed as signals for mariners, the compass becomes the guide of the sailor, fire becomes the tool of the miner, steam is the servant of manufacturing and the beast of burden for commerce, electricity is the messenger to distant lands and neighboring homes and at last the steed of the chariot of common life. As the dugout developed into the boat and the boat into the ship, so the ship has developed into the ocean palace. In savagery tribes communicate thought in gesture-speech. In barbarism tribes communicate thought in picture-writing. In monarchy nations communicate thought in writing. In democracy nations communicate thought by lightning-speech.

The age of democracy is the age of machinery, and has sometimes been called the age of steel, because this substance is largely used in tools and also in machinery. Machinery has not only revolutionised the arts, but it has revolutionised society itself, for it has largely destroyed guilds as trades and apprenticeship as a system of learning trades, since to a large extent the skill has been transferred from the man to the machine. This revolution is just now in progress. Transportation has also been changed and a new system of industries developed which again has reacted on systems of exchange. In these and various other ways the regimentation of the people for industrial pursuits has been transformed by the organisation of a system of corporations, some of which are gigantic and embrace operations as great in extent as those in which nations once engaged.

Language is no longer inflectional as a device adapted to disputation and a discipline of word learning, but it becomes organic by the development of more thoroughly differentiated parts of speech, and thus becomes the instrument of exact and logical expression adapted to the communication of scientific thought.

When the good queen sold her jewels she little dreamed that she would emancipate the people from the chains of mythology to roam at will in the sunlight of science; but so it has happened. Science could not lift her head in the presence of mythology, until its disciples had demonstrated the spheroid figure of the earth in such a manner that all were compelled to believe it. Who shall say that the impetus given to science by Columbus was not a greater boon to mankind than in the gift of a continent of new homes for an enlarged theatre of peoples? It needs not to portray the rise of republics in various portions of the world, nor to set forth the development of representative institutions in the nominal monarchies of western Europe, in America, Africa, Asia, and the island nations. Some of the republics are not yet pure democracies, and some of the monarchies are far from being pure monarchies; but as the years pass the metamorphosis is accelerated.

It was stated above that savagery is a more peaceful state than barbarism, that barbarism is a more peaceful state than monarchy, and now it may be affirmed that monarchy is a more peaceful state than democracy. As the club was exchanged for the sword, and then the sword for the bayonet, and then the bayonet for the cannon, armies underwent a corresponding change in organisation by adaptation to new methods of warfare, and wars have increased in destructiveness, in strength of legions, and in frequency of battles. The armies of the more civilised nations have steadily increased since the days of Columbus, and during that period have greatly outnumbered the armies of antecedent times. The wars which the more highly civilised nations have waged were never before equalled in atrocity or slaughter. The international wars of Napoleon and the civil war of Grant were never before equalled in magnitude. Of the three most potent factors in the transformation of society before Columbus, namely, industrialism, militancy and religion, it cannot be said that progress is from one to the other, but that all have developed each in its own sphere. Industry has developed to the stage of machinery, and war has developed to the stage of gigantic armies.

Since the common people have known that the world was

round, and the concept is no longer in the possession of the few, scientific research has been organised. The germs of research were planted by Aristotle and other Greeks, but they never grew to maturity until scientific men exhibited a series of splendid results which captivated mankind. The schools were devoted to philosophy and disputation. But little by little the disciplines of science, when they could no longer be ignored, were introduced into the seats of learning. The leaven worked a transformation, so that the schools became agencies of research and instruction in science as well as in philosophy. Gradually philosophy itself came to be known as metaphysics by the accident of a word. At last schools, individuals, and finally governments were enlisted in the work of research, and metaphysics has been relegated to a discipline for one of the years or even one of the scholastic terms in the life of the student. The public schools, colleges, and universities are now engaged mainly in the teaching of science. At last a fourth factor or potent mental agency in civilisation has been developed, so that now industry, militancy, religion, and science are the four supreme agencies of change, and the new agency subordinates them all.

It is important to note here the metamorphosis wrought on religion by science, which comes to purify but not to slay. Not as the ages go by, not as the centuries lapse, but as decades fly, a change is wrought in the human conception of the attributes of deity. The pleasure of worship is becoming the contemplation of perfection, the form of worship the agency of instruction, the cause of worship the love of humanity, the purpose of worship the purification of conduct. This is the ideal state to which religion is tending, and it must be understood in order properly to appreciate the characteristics of the existing religions. In the primitive world religions were many, because tribes were many and languages many, names many, and totems many; but they were all on one plan, to secure one purpose, namely, that of pleasure, and to give pleasure to the gods. They were still many in barbarism, though not so many, but all designed to obtain welfare and to give welfare to ancestors. Then religions became few and sought to yield trib-

ute of praise and allegiance to gods, and to gain bliss hereafter with incidental prosperity now. Much of ceremonial worship remains yet in this the first period of the new stage in the evolution of religion. Much of theoretic and practical sacrifice remains; much of creed remains, but more of scientific truth. As this last agency approaches perfection religion advances, for science has no conflict with it but only with metaphysics.

From time to time during the stage of monarchy prophets arose who became great teachers. Seeing that true ceremony is only impressive symbolism, that true sacrifice is only immolation of unwise desire, and that true creed is only expression of opinion, and being profoundly convinced that true religion is righteous deed, they sought to convert men to better ways and taught a religion of ethics. Some of these great teachers for a time were successful, but by reason of ignorance and sin disciples continually relapsed into ceremony, sacrifice, and creed as true religion and forgot religion itself. But when Moses and Confucius and Buddha and Mahomet and Jesus could teach the world through the magical speech of books, great teachers multiplied and ethical religions gained ground. In democracy one of the great historic religions prevails, and has attained to Catholicity in that stage; though it has many subdivisions, the teaching of Jesus ever more and more in the spirit of the Sermon on the Mount is becoming the religion of the people. Though this religion is represented by diverse ceremonies and by differing theories of sacrifice, it is unified in practical ethics, but not in theoretical ethics. As the years pass, insistence on ceremony, insistence on sacrifice, and insistence on creed grows less and less, while instruction in ethics grows more and more. Ethical religion, though now often vaguely taught, will triumph in Catholicity.

JOHN WESLEY POWELL.

WASHINGTON, D. C.

LOVE AS A FACTOR IN EVOLUTION.

ONE of the most firmly-rooted and widespread popular misconceptions of the struggle for existence is that only so-called "brute" or selfish qualities are concerned in it. It is assumed to be a relentless and ceaseless war of extermination, whose watchword is, "every man for himself," and in which no quarter is or can be given. Strength, selfishness, and ferocity, "the qualities of the ape and the tiger," are the only qualities concerned in or developed by it. The idea of love, of sympathy, of self-sacrifice playing any part in it, is regarded as simply absurd. Indeed, the possession or display of any of these qualities is gravely declared to interfere with its legitimate result,—the survival of the fittest. Even by those who admit that this cosmic process is sufficient to account for the physical or animal characteristics of man, it is emphatically affirmed that his mental and moral qualities have been acquired not by virtue of it, but in direct opposition to it. Not even the old Calvinistic distinction between "Nature" and "Grace" was more sharply drawn than that between the egotism born of the struggle for existence and the altruism demanded in the ethical and moral sphere. Nor is this impression confined to the popular mind, for no less revered an authority than the lamented Huxley in that most painful and deplorable "swan-song" of his, *The Sheldonian Oration* of 1893, declares that what we call goodness or virtue involves a course of conduct in all respects opposed to that which leads to success in the cosmic struggle for existence, since self-assertion is the essence of the cosmic process, and unmitigated self-assertion is incompatible with social morality. But much as we love and admire our great leader, so recently taken

from us, we love nature more, and resent any and all such statements as libels upon her great, calm, loving processes. It is easy to see the apparent grounds for this misconception; but we affirm that it is a misconception, nevertheless, as a careful weighing of the facts in the case will prove, and we venture to assert that Love with its daughter, Goodness, is not only a legitimate product of the process but next to Hunger the *most powerful factor* in it.

Before proceeding to a consideration of the question in detail, I wish to call attention to certain obvious facts, that I think are hardly estimated at their true value in discussions of this subject. The first is that the emotion of love itself is a fact as firmly attested by experience as any other in the physical world, and hence from a purely naturalistic standpoint is not only entitled to but *must* be recognised as one of the factors in cosmic progress. In this sense it is as genuine a force in the scheme of progress as gravitation. The animal or man who permits affection to influence his conduct in the struggle is obeying a law of nature just as truly as the one who is influenced by hunger. Love is everywhere in evidence and actually at work and *must* be reckoned with.

The second is that love and its results being everywhere present not only in the human species, in all ages, but in all the countless forms of life, from the very earliest dawn of intelligence and consciousness, there is no conceivable reason why it should not be regarded as a result and part of the process just as much as intelligence, combativeness, or muscular power,—and the real *onus probandi* rests upon those who assert that it *did not* so originate and develop.

As Herbert Spencer pertinently remarks in reply to Huxley, "If the ethical man is not a product of the cosmic process, of what *is* he a product?" Strictly speaking, the struggle for existence and the naturalist are fully entitled to claim love and morality as their own until "revelation" and the supernaturalist have proved the contrary. And while not only in popular but also in a large and weighty proportion of scientific thought the cosmic struggle is regarded as "inadequate" to account for the affections and morality, yet it must also in all fairness be admitted that from a rational

point of view "inadequate" would be an extremely mild form to apply to any of the numerous other attempts to account for them.

The third consideration is that love and selfishness, or, in the language of the day, altruism and egotism, are, instead of utterly antagonistic and destructive to each other as is generally assumed, really complemental and mutually helpful. Both are absolutely essential to progress, and neither could long exist without the assistance of the other. Either of them, if carried or followed to an extreme, will defeat its own ends and prove detrimental to not only the community but to the individual. It may sound paradoxical, but it is nevertheless a fact, that any intelligent and effective egotism must necessarily include a considerable degree of altruism, not only in man but in the beast, the bird, the insect. Unbridled egotism wrecks the "ego" just as surely as it wrongs the "alter."

Probably nothing would give us a more vivid impression of the fundamental and basal character of love than a consideration of the time of its first appearance in the cosmos. For a long time it was commonly assumed in discussions of this question that it was strictly confined to the human species in its purity, and that even here the genuine article was possessed only by the few who had acquired it through the medium of some "gospel" or "revelation."

It was admitted that a pretty good imitation of the emotion was displayed by "the heathen," "niggers," and even the lower animals, but this was officially declared to be mere "blind instinct," "brute impulse," etc., and of a totally different nature from the supernatural or imported variety. But this position has had to be abandoned and the dignity and holiness both of our own "fleshly" affections and those of the lower animals admitted. Love was now said to appear when infancy did, or wherever living and breathing young were born which required protection.

But even this line was too narrow, for it obviously excluded some of the most striking instances of the passion; among birds, for instance, in ants, in bees, in spiders; nay, even in crustaceans,—indeed, traces of the golden thread may be followed down almost to the protozoa. In fact, the date of its appearance is as difficult to fix as that of the creation,—with which it is probably coeval.

Broadly speaking there appear to be two classes of influences or forces at work in the universe. These may be roughly described as centrifugal and centripetal, separating and cohesive, individual and social. Both classes are equally necessary and equally inherent. For instance, the natural tendency of all matter is said to be constant movement in a right line, but everywhere that we find it this influence is held in check by an attraction between itself and other atoms known as gravitation.

Thus gravitation might be figuratively described as a sort of atomic affection. The whole universe is believed to have been formed by this mutual affinity between the particles of its original nebula or fire-mist, causing them to combine first in rings or bands of different density and coolness, then in rotating spheres, and so on through endless combinations of increasing complexity down to the present day.

The nebular hypothesis is the primitive love-story of the solar universe. The power of combination is the mainspring of progress here as elsewhere.

Physicists tell us that the whole difference between the three states of matter, the gas, the liquid, the solid, consists simply in the closeness of the relations between their molecules.

And the more intimate these become, the greater the possibility of permanent variation and consequent progress. The gases of to-day are practically those of the original fire-mist, the fluids have varied but little since the bounds of grey old ocean were established. The wondrous development that we see about us has occurred almost wholly in and through the firmly coherent solids. Without cohesion no progress is possible.

Nor is this cohesion mere contact under external pressure, mere inert resting of one molecule upon another. Suspend a thread in a saturated solution of any crystalline salt and watch the result. From every part of the liquid tiny particles rush to group themselves around it, until it becomes transformed into a solid pillar consisting of almost every atom of the salt in the vessel. There seems to be a positive clan-feeling between the molecules. And not only is this affinity for each other active, nay, aggressive al-

most, but it is also purposeful. The column around the thread is not a confused heap of granules but a wall or mosaic of clean-cut, uniform, delicate crystals often of most beautiful shape and hue. More than this, given the salt in solution and the temperature, and the exact shape of these crystals can be foretold with absolute certainty; the molecules of one salt will invariably rush together and arrange themselves in prisms; of another in needles; of another in delicate and elaborate rosettes or in sparkling diamonds of six, eight, or ten facets and faultless outline. In short, the conviction almost suggests itself that these atoms have not only affection, but its invariable companion, intelligence.

It goes without saying, of course, that this same instinctive impulse of combination is the very essence of the development of those higher forms which we term "alive," even long before consciousness or volition of any sort can be imagined to exist.

If we watch the wonderful and beautiful division of labor among the cells which takes place in even the simplest forms of plant life, must we not almost imagine that some sort of an understanding exists between them? That some sort of blind instinct of devotion or loyalty to the mass accompanies the action of one group of cells in burying themselves in the ground, away from the light, the warmth, the dew, of another in flattening themselves out into leaves, all lungs and no stomach, and of another in shrinking down into the woody fibre of the stem or petrifying themselves into its siliceous coating? In one sense, the relation is on a purely mercantile basis, each group renounces a part of its birthright in order to render certain services to the plant republic, which in return supplies it with food, water, air, or protection as the case may be. And yet it is hard to rid ourselves of the idea that there must be some sort of *esprit de corps*, some dim sense of solidarity amongst them, at all events even if we are not permitted to credit them with kindly intentions or with affectionate sentiments, yet it cannot be denied that their actions possess these qualities in a high degree, in the which they are decidedly superior to many professed philanthropists and reformers among their descendants of the present day.

Nor is the service rendered by any means always consistent

with the welfare of the individual cell, in many cases it is exactly the reverse and it literally "lays down its life for its friends" and performs its chief function by dying.

We cannot deny them the martyr's death or what is more difficult, the martyr's life, though we may the martyr's crown. The same is true of the cells of the animal organism, including those of our own bodies. A beautiful illustration of apparent devotion is furnished by the white cells of our blood, the leucocytes, whose principal function appears to be a protection of the body against all noxious germs or substances which penetrate its tissues. This they do by hurling themselves upon the intruder regardless of whether they destroy, or are destroyed by him, and either overwhelm him by their numbers or failing this, imbed him in their dead bodies so that he may be swept out of the system without being able to attack the other tissues. No enemy can enter the fortress, save over their lifeless corpses.

And the singular thing about it is that they are in no way directly connected with the fixed cells of the body or under the control of the central nervous system.

They are a band of free lances ranging up and down the blood channels, who receive from the body their bread and salt, and in return are ready to die in the last ditch in its defence.

The complete individuals also of most forms of plant-life display a decided tendency to group themselves together in clumps, in patches, and in masses. Nor is this due entirely or even mainly to direct propagation, or peculiarly favorable soil or aspect, but they actually flourish better under certain degrees of mutual pressure. Our grasses and grains, for instance, cannot reach their highest development except in masses. The huge ear and priceless berry of the wheat would be impossible were it not for the support afforded to its slender stalk by its fellows in the golden billows of the wheat fields.

The towering stature and spire-like erectness of the lordly pine can be attained only shoulder to shoulder with its brethren in the serried ranks of the dense forest. Alone it dare not brave the winds of heaven to half that height.

Nor is it solely between cells of the same plant or plants of the same species that relations of mutual advantage exist; it has been demonstrated of late that almost all the classes of higher plants depend for their very existence upon the existence of swarms of bacteria in the soil, which change the nitrogen of the soil, of the air, into ammonia and nitrates in which form alone it can be absorbed by the roots of grasses and herbs. Simply destroy the bacteria and moulds in any given patch of soil by heating it, and plants will refuse to grow in it. In most cases, of course, this relation is a mere geographical one, an accidental co-existence in the same soil-bed, but in others it is so definite and intimate that a term has been coined to express it—"symbiosis" or "mutualism."

Common clover, for instance, is largely dependent for its nourishment upon the abundance of tiny, apparently parasitic organisms which attach themselves to its rootlets, known as "root-knots," which absorb nitrogen from the air and elaborate it for the use of the plant. Hence its peculiar power, so highly prized by the farmer, of not only not impoverishing but actually enriching the soil in which it grows.

A similar service is rendered by the moulds which form upon the roots of oaks and ashes in certain soils.

In the plant-world, at least, there is no antagonism between "the higher life" and the lower; in fact, the former absolutely depends upon the latter. It would, of course, be absurd to claim that any feeling of affection or conscious purpose was present in or prompted these mutual relations among vegetable cells, but still it seems hard to imagine its occurring with such tremendous frequency and constancy without some blind instinct of combination, some dim sense of solidarity, on the part of one or both groups.

My main object in dwelling upon it is simply to call attention to the fact that combination is as essential and important a law of nature as antagonism, friendly co-operation as hostility.

"Live and let live" is as necessary a part of the struggle for existence as "war to the knife."

That when man loves he is but giving a name and conscious shape to impulses which have existed in the germ since shortly

after the earliest appearance of life on the planet. That love is to him as natural and necessary an emotion as hunger.

The first appearance and real birthplace of true love and conscious affection is to be found in the reproduction of the species. Around this process cluster alike its earliest memories and its noblest developments. From its earliest stages there is a curiously altruistic element about it, a subordination of the individual to the race.

The amoeba who divides by simple fission is performing an act of immense importance to the race, but of little or no conceivable advantage to himself, unless he may have been driven to it in the first place as the only alternative of stagnation and death. Similarly the hydra, a little higher up in the scale, thrusts out its buds, apparently far more with reference to the colony, than to any advantaging of itself.

The process goes on, rising in type and increasing in complexity, through the anemone, the star-fish, the shell-fish, in the same blind instinctive manner, though with a rude dignity about it that separates it from all other vital processes, and it is not until we reach the point where the division of labor takes the majestic and far-reaching step of making two individuals necessary to its performance that we find any trace of conscious emotion or purpose concerned in it.

The appearance of sex, the development of maleness and femaleness was not only the birthplace of affection, the well-spring of all morality, but an enormous economic advantage to the race and an absolute necessity of progress.

In it first we find any conscious longing for or active impulse toward a fellow creature. Though big with great possibilities, it is yet as an impulse to conduct of the narrowest sort and apparently in many respects but little superior to the purely selfish or nutritive appetites. Another touch is needed before it becomes capable of development or of reaching any high or noble pitch.

And this is the appearance of offspring which need parental care.

The first appearance of reproduction, by fission or division, is

merely a forced solution of the problem of keeping up a sufficient proportion of absorbing surface to a given amount of bulk. Nature's stern *ultimatum* is, "Divide or die,"—and the amoeba divides. But this is found to be a clumsy and expensive process, and an improvement is introduced by which the cell instead of cleaving to its very centre simply throws out buds from the surface, the buds become smaller and more numerous and ova are formed, and finally the process is divided between two separate cells, and sex is born.

For a long time sex appears to be little more than a mere economic device, a vital "division of labor" on the grounds of economy of expenditure and increase of efficiency. Indeed, this would appear to be its chief rôle not only in the plant-world, but through the whole Invertebrate Sub-kingdom with the exception of one great class, the Insects, and in the three lower classes of the Vertebrates. Yet even here its high character is shown by the wonderful beauty and complexity of the structures developed by it, as the colors and shapes of flowers and the incredibly elaborate mechanisms they possess to ensure fertilisation by insects; the rich tints and graceful contours of the luscious fruits, the priceless berry of the wheat and grain of the maize, the rainbow lustres of fishes. Even in those classes where it does not reach the level of parental affection, as in the crustaceans, the fishes, the reptiles, it is invariably associated with the highest development of strength and fighting-power in the males and of intelligence in the females, of which they are ever capable. The nocturnal journeyings of earth-worms, the pluck and determination displayed by fishes in their long and perilous annual migrations in search of a spawning place, stemming the fiercest currents, leaping the mill-weirs, forcing their way up the brooks where the water is scarcely deep enough to cover their backs, all that the next generation may have their start in life under the most favorable circumstances possible, are cases in point. And although the classic statement that "even an oyster may be crossed in love," must be regarded as a mere figure of speech without scientific foundation, yet his gastronomic associates, the lobster and the crawfish, are aroused from their usual lethargy

to a tremendous pitch of pugnacity and valor by the approach of the pairing season and undertake quite extensive migrations under the same influence, while the females of some of the highest forms of crustaceans appear to exercise even a small amount of maternal care, carrying the ova and newly hatched young on the under surface of their caudal appendages.

The same may be said of the fishes, the reptiles, and the amphibia, even the stupid and sluggish newt or salamander being galvanised into something resembling activity and intelligence by the approach of the breeding-season.

Let parental affection, however, appear, and a striking transformation begins. Intelligence not only of a degree, but of a kind unknown before is born. If this were confined to the mammalia alone, it might be regarded as a mere coincidence, and affection as merely one of the many properties of the higher forms of life: but the fact that this emotion produces identical results not only in a lower class of vertebrates, the birds, but in a class of invertebrate life, the insects, effectually negatives this claim.

Insects are in no way superior to the other classes of invertebrates in size, in vigor, or in nutritive power, indeed they are inferior to most of their fellows in these respects, and yet in two qualities alone, affection and intelligence, they reach as it were, at one bound, not only the head of their own sub-kingdom, but also a rank almost equal to that of the very highest forms of vertebrate life. And in nearly every instance this extraordinary intelligence is chiefly displayed in connexion with the reproduction of the species.

The *chef d'œuvre* of the wasp, the one thing that makes him famous, is his paper-like nest and comb, every angle of which is calculated with mathematical accuracy. But his ingenuity does not stop with the construction of this exquisite hexagonal cell and the safe deposition of the fertilised ovum at the bottom of it. The cell is built not only large enough for the adult larva but also for an abundant supply of food materials for his nourishment during his development. Moreover, the wasp is a carnivorous creature, and a supply of even freshly-killed, juicy caterpillars would putrify long

before the larva grows large enough to devour them, so the grubs are caught and instead of being killed are dexterously stung just behind the head, at precisely the required point to strike the chain of nerve-ganglia and *paralyse* them.

Thus they are incapable of either movement or further development, but will continue to live and hence "keep fresh" until master larva is ready to make use of them. Could human ingenuity go further? A refrigerator-car or can of corned beef is a clumsy device by the side of this.

Bees can boast not only of the triumph of the comb, so exquisitely constructed with a view to a maximum of strength and containing power with a minimum of material, that not even the most elaborate engineering calculations can improve upon it, and a strip of wax "foundation" an inch wide and four long and weighing a few grains can be expanded into a comb four inches square by two inches thick, containing over a pound of honey, but also of one of the most elaborate and yet elastic social and political organisations that the sun shines upon. A limited monarchy in which the rights of every citizen are firmly upheld.

And all this is directly for the preservation and perpetuation not of the individual but of the race. That other bees who are still in the egg may survive the coming winter, the earlier-born worker-bee literally and actually slaves herself to death, gathering honey, making comb, or elaborating bee-bread. The life-time of a worker-bee in the height of the season is often not more than three or four days. At the call of their queen they swarm forth in myriads to leave their comfortable hive and brave all dangers in starting a new colony to raise more broods. Their celebrated weapon, the sting, while of incalculable value for the protection of the community and its stores, is not only valueless but actually fatal to the individual, as death inevitably follows its use. Their most extraordinary achievement however is the power possessed by them, according to some authorities of actually determining the sex of the larva by the food upon which they feed it, thus literally "manufacturing" queens, drones, or workers, as the needs of the hive demand. A

power which places their intelligence not only on a level with ours, but distinctly above it.

Ever since the days of good King Solomon we have been exhorted to "go to the ant" as a model of industry and foresight, but these are only the smallest of the qualities in which even human beings would do well to take these wonderful insects as a pattern. Not only do they, as the proverb approvingly comments, build houses and store up food against rigors of winter, but they possess a social organisation so elaborate and advanced, that they have actually passed some of the standards, established by anthropologists, for the third stage of savagery or first of barbarism, namely: "The domestication of animals other than the dog." Several species of ants not only capture but literally domesticate a variety of the green plant-lice (*aphides*), "milking" them by stroking them with their antennæ until they yield their drop of honey-like secretion, building stables for them upon their favorite plants and changing them to fresh pastures from time to time as their needs demand. A regular dairy-farm, only with little green cows in place of the classic red ones. They build houses which rival our modern Chicago "sky-scrapers," ten, fifteen, and twenty stories in height, with halls, store-rooms, sleeping-chambers, corridors, warm southern galleries for nurseries, and royal apartments. They go out to war, in serried ranks, under the command of a single leader. They have laws which are rigidly enforced and whose penalties are promptly inflicted. All they lack is speech to render them well nigh our equals. As one of the closest observers of their habits, Krapotkine, asserts: "Mutual aid within the community, self-devotion grown into a habit and very often self-sacrifice for the common welfare are the rule. . . . And if the ant stands at the very top of the whole class of Insects for its intellectual capacities; if its courage is only equalled by the most courageous Vertebrates, and if its brain—to use Darwin's words—'is one of the most marvellous atoms of matter in the world, perhaps more so than the brain of man,' is it not due to the fact that mutual aid has entirely taken the place of mutual struggle in the communities of ants?" There is just one function around which all the activities of this

wonderful people centre : which is alike the motive and the goal of all their efforts, the care of the coming generation. For them the finest and most spacious galleries facing to the South and warmed by the sun are built and reserved, for them the honey-dew of the aphids is collected, for their production and protection the whole elaborate community is organised, for them the battle is fought to the death.

Break open an ant-hill and you will find at once that the first thought of the entire startled community is to save not themselves, but the eggs and larvæ ; the warriors rushing bravely forth to discover and attack the enemy, while the nurses, seizing each her charge in her mandibles with an utter disregard for their own lives, rush wildly hither and thither in search of some place of safety where they may deposit their precious burden. In a wonderfully short space of time every egg has been carried into some of the uninjured galleries ; the opening hastily blocked with little pellets of earth, the warriors are recalled, unless they have, much to your sorrow, succeeded in finding your ankles in the meantime, and the work of the community which was so rudely interrupted goes on once more. The one thing that lifts the ants, the bees, the wasps head and shoulders above all their fellows is the love they bear to their offspring. Wherever in the wide world of organic life love is found, there also are found its devoted servants, courage and intelligence. The higher we rise in the scale, the more prominent does this factor become.

The thing which most distinguishes that living, vocal sun-beam, the bird, is his warm affection first for his mate, and secondly for his nestlings.

To the first he owes his matchless hues and exquisite shadings from the liquid-fire of the humming-bird's throat to the soft silvery sheen of the turtle-dove's breast, or the under-wing of the plover. To this also he owes his wonderful gift of song which rises as far above human speech in its power to express emotion as it falls below it in its ability to convey ideas. No one, I think, can listen to the burst of glad-throated melody which greets the sunrise in May, from every copse, without feeling that the soul of the bird comes

nearer the soul of man than that of any other of the innumerable forms of life: nay, that in love and worship it rises far above it. And every shred of color, every line of pencilling, every note of melody owes its being to the graceful rivalries of courtship, in Philistine phrase, to sexual selection. They are of no possible benefit to his nutrition as an individual: on the contrary, they serve both to warn his prey and to render him conspicuous to his enemies. They actually mean fewer butterflies and more breathless chases, but he needs them in his little *affaires de coeur*, and behold, they are developed and become his chief glory and only claim to distinction.

And with the appearance of the offspring what an immense amount of skill and craft and intelligence must be developed: first there is the building of the nest, a pyramid of Cheops in itself which must accurately match the bark of the old apple tree, in whose fork it is built, like the chaffinch's, or swing from the wind-tossed tip of a bough beyond the reach of the craftiest snake or most active monkey, like the oriole's, or be slung up under the eaves like a swallow's, or woven so that it will float in a freshet like a water-hen's, or stitched on the under side of a leaf, "as the fern seed, invisible," like the humming-bird's, or built in the centre of a *chevaux de frise* of thorns like the shrike's. No sooner is this finished and the eggs laid than the period of hatching begins, and what a tremendous developer this is of patience and courage in the female and energy and foraging-skill in the male. With the appearance of the young all the aggressiveness and resources of both parents are strained to the utmost, everything that comes near the nest must be attacked, and fresh food is demanded every hour of the day.

Then there is the training of the little ones to fly and the watchful guarding of their first flutters, the brave attacks of the father upon every foe that approaches, or the skilful feints of the mother as screaming and fluttering with drooping wing and limping gait she lures the foe to pursue her and leave her offspring to escape or hide themselves.

Bird-beauty, bird-music, and bird-intelligence have one com-

mon root, the nest. Later on they are used for more extensive combinations: groups, flocks, colonies are formed for migration, for protection, nay even for combined attack and defence.

Little groups of king-birds will attack and fiercely pursue hawks, wagtails will positively persecute sparrow-hawks, even tiny swallows will surround and by sheer force of numbers and aggressiveness overwhelm and chase away a falcon, if it dares to come near their nest-colony. A mere "passel o' sparrers" will take a positive delight in making the life of any owl, that they can discover in the day-time, a burden to him. Water-fowl upon the shores of lakes will combine to attack and drive off falcons, ospreys and even the eagle himself. Through mutual aid and mutual affection, "the meek" literally have "inherited the earth."

But it is when we reach the highest class of all, the Mammalia or "breast"-animals, that this close relation between affection and progress becomes most striking.

At the very outset of his consideration of this aspect of the struggle for existence Darwin remarks in his clear, simple, almost matter-of-fact style, "the individuals which took the greatest pleasure in society would best escape various dangers; while those who cared least for their comrades and lived solitary would perish in greater numbers." And this thought, though sadly overlooked or even shamefully misrepresented by many of his so-called followers, is of late being emphasised as it deserves. One of our highest authorities upon the social life of animals, Krapotkine, declares that "Life in societies is no exception in the animal world. It is the rule, *the law of nature*, and it reaches its fullest development with the higher vertebrates. Those species which live solitary or in small families only are relatively few and their numbers are limited. Life in societies enables the feeblest mammals to resist, to protect themselves from the most terrible birds and beasts of prey; it permits longevity; it enables the species to rear its progeny with the least waste of energy and to maintain its numbers, albeit with a very slow birth-rate."

"Therefore while fully admitting that force, swiftness, etc. . . . are qualities making the individual the fittest under certain circum-

stances, *we maintain that under any circumstances sociability is the greatest advantage in the struggle for life. . . .* The fittest are thus the most sociable animals, and sociability appears as *the chief factor in evolution* both directly by securing the well-being of the species while diminishing the waste of energy, and indirectly by *favoring the growth of intelligence. . . .*¹

"Therefore combine, practice mutual aid. That is the surest means of giving to each and to all the greatest safety, the best guarantee of existence and progress—bodily, intellectual, moral. That is what nature teaches us."

The same thought is vigorously advanced by the brilliant young biologist, Arthur Thomson, who says: "But animals are social not only because they love one another, but because sociality is justified of her children. The world is the abode of the strong, but it is also the home of the loving."

The attitude of most popular and many scientific writers towards these "higher" qualities of ours is truly singular. Utterly useless or actually injurious to self-advancement, they have come into being somehow by chance and are a sort of dangerous and expensive biological luxury, which man and the higher mammals can afford to indulge in, solely by virtue of their superior strength and intelligence. Social instincts and relations have sprung up, not as a means of waging more successfully the struggle for existence but as a means of escaping from it, and we are gravely warned by some "evolutionist" philosophers that we must not allow our sympathies for our fellows too much sway over our conduct, lest we should "promote the survival of the unfit"! And all the while it is these very sympathies which are both the foundation and mainspring of our present "fitness" and civilisation, while love is the very creator of our strength and intelligence instead of their spoiled darling. In the great group of mammals the same rule holds as in birds and insects, that whatever species or families are solitary and unsocial in habits, form no communities and few or brief family ties and give birth to few offspring at a time and

¹ The italics are ours.

these requiring but little care, are almost invariably either of a low grade of development, stupid and cowardly, like the sloth, the armadillo, the ant-eater, and the mole, or else ferocious, capable of little modification, and of a sometimes keen but markedly limited intelligence, like the cat, the panther, the wolverine, and the otter. If we were to divide the group into three great classes, those who care little for their offspring, or mate for a brief period only, those who are devoted to offspring and mate but indifferent to all others of their species, and those who cherish not only their immediate family but also the members of their pack, flock, or community, we should find almost every species of any notable degree of intelligence in the last class. And while certain members of the second class, such as the great cats and the bears, are as individuals among the most formidable and dangerous of the entire sub-kingdom (although the gorilla, the water-buffalo, and the wild stallion can meet any of them on equal terms), yet they can never become half so numerous in a given area as those of their own family who form packs for mutual assistance, nor do they resist extermination as long. And even the tiger will snarlingly relinquish his kill to the dhole- (wild dog) phalanx, while the huge grizzly has to often give the right of way to the wolf-pack, and the jaguar to the peccary-herd. Fierce and powerful as are the tiger, the panther, and the grizzly bear, they are seldom half such a serious and obstinate obstacle to spread of civilisation or so dreaded by settlers in a new country as the far feebler wolf, with his pack-forming power. On the other hand, scarcely a single mammal has been found worthy either physically or mentally of domestication by man, excepting the cat, which is not social to a high degree.

We are apt, I think, to forget what a vitally important and incessantly acting factor in the survival of all our larger mammals, outside of the pure flesh-eaters, this mutual aid is. The moment, so to speak, an animal gets big enough to be readily visible from some distance in the open, it must either confine itself to thickets, swamps, and mountain-ledges, or combine with its fellows for mutual defence. This combining would appear to be associated more closely than with any other single factor with the lengthening of

the time required for reaching maturity on the part of the young. Most carnivora are for practical purposes of either escape or defence mature at from six to ten months, while most hoofed animals take from two to five years for full development.

This naturally increases the duration of parental care and the size and complexity of the family, which, aided by the polygamous instincts of the male, becomes the nucleus of a rapidly forming herd. The larger and more complex the latter becomes, and the greater the intelligence required to maintain concerted action and keep in touch with the entire mass, while under the protection of numbers relieved from the necessity of rapid and frequent flight, the size and vigor of the body steadily increases until the species becomes almost impregnable against the attack of any carnivorous species, save and except the fiercest and most dangerous of all, man, as was the case with the buffalo of our Western plains. The daily and hourly exercise of first, affection, then intelligent sympathy, and finally courageous devotion is absolutely necessary to existence. Even an animal so apparently little gifted in other respects as the cow displays some remarkable qualities in this regard. The hardest Texan ranger is extremely chary of handling or even alarming a young calf, lest it should "blart" out its danger-cry, for the whole herd goes simply mad with rage at once and will attack anything that comes in their way. Such is the watchful care extended over these little ones that in the spring when they first begin to arrive and like their scarcely more chubby human counterparts need to sleep most of their time and are quite incapable of following their mothers over the considerable area which must be covered every day in grazing, regular *crèches* are established for them on the sunniest slope of the grazing valley, where they are guarded by three or four of the sharpest-horned old Amazons of the herd, while their mothers graze at ease till meal-time comes. One of the prettiest sights upon the great cattle-ranges is to suddenly come upon a group of ten or a dozen of these little red-and-white breathing puff-balls, fast asleep in the grass, with their vicious-looking guards patrolling near them, the herd grazing in the distance and a couple of hungry coyotes gazing wistfully down from

the top of the next range of hills, hoping that *something* may happen to distract the attention of the guards for a minute or two. But the flaw in this bravery and vigilance lies in its occasional inconstancy. In horned cattle fits of rage are apt to alternate with equally furious and unreasoning fits of panic, and though the cow will protect her sucking calf under all circumstances, in the mad stampede many a weanling and yearling falls behind the herd and is pulled down by the hereditary foe. It is to our noblest friend, the horse, that we must turn for the perfection of mutual aid and civic courage.

When the alarm is sounded by the sentinel of the herd, the horses and mares rush not away from the danger but towards one another and rapidly form a compact mob in the centre of the valley. The colts and yearlings are pushed into the centre while the adults form a firm ring round them, facing outward, so that whether the snarling and disappointed pack of the gray devils of the plains attack the regiment in front, flank, or rear, or all three at once, they find themselves everywhere confronted by an unbroken rank of snapping yellow ivories and dancing iron hoofs, driven with the force of trip-hammers, any attack upon which will only result in a mouthful of their own teeth or a broken skull. It is the "human wall" of Sempach, the hollow square of Waterloo, in its original form and like them it can defy any foe short of the bullet. Should a mare or colt be surrounded by the wolves before they can join the regiment, the latter moves swiftly but steadily to their assistance led by its war-chief, the oldest and ruling stallion of the herd. He alone takes no part in the formation of the circle, but trots proudly out from it in the direction of the threatened attack and woe betide the wolf who ventures near enough to be overtaken before he can regain the broken ground of the nearest foot-hills. It is short shrift and no quarter for him, and not only the big, gray timber-wolf of our Northern plains, but even the jaguar of the pampas, have been slain in single combat by the war-lord of the horse-herd in defence of his mares and colts.

All these faculties are of course developed in a state of nature, and perhaps better exemplified in this condition. Indeed it is the

training which this mutual co-operation has given, and alone could give, to their intelligence which has rendered them capable of such valuable co-operation with man in his progress. There can be but little question, but that the horse transfers or extends to man the sentiments which he originally felt toward the herd, while the dog simply regards man as at least a member and possibly as a sort of deified embodiment of the pack. Hence the touching fidelity and self-sacrificing devotion, of which both these noble friends of ours are capable, the mere mention of which is enough to call up in most of us the warmest and most grateful recollections. There is no need to multiply instances, poets have sung and philosophers have sounded their praises in all ages, and here the relation between affection and other high qualities is still preserved, for it is almost invariably the most loving who are the most intelligent and the most courageous.

Moreover those animals, or breeds of them, that are kept most constantly upon terms of affectionate intimacy with their older brethren of the human species, are those which are most distinguished for courage, beauty, and intelligence. There is nothing peculiarly favorable to the development of the horse in the climate, soil, or vegetation of Arabia; much indeed that is unfavorable. But here, almost alone in the world, the horse has been made a member of the human family, sheltered under their tents, fed from their dishes, fondled, wept over, nay, almost prayed to in times of peril, and the result has been not a spoiled and effeminate plaything, but the noblest joint-product of man and nature—a creature with the swiftness of the falcon, the beauty of the gazelle, and the courage of the lion, who will gallop till he drops, with no other spur than the mere touch of his master's hand. If the wild Bedaween of the desert had never produced anything but the Arab horse, that alone would have earned them the gratitude of the human race. It is simply astonishing to what extent every breed of the horse, which has achieved a reputation outside of its own native province, owes its best qualities to the mixture of his wonderful blood. Either directly or through his descendant, the English thoroughbred, he has left his mark all over the civilised world. The winner of the Derby

or St. Leger, the American trotter, the spirited Barb, the Australian Waler, the plucky and wiry broncho of our western plains, all alike are proud to trace their pedigree back to him, and wherever his blood is found, it still carries with it not only speed, beauty, and endurance, but what ranks almost higher yet, absolute devotion and indomitable courage. Wherever man is called upon to risk his neck, to trust his life to his horse, whether in battle, in the hunting-field, or upon the badger-riddled cattle ranges, the Arab blood is his first choice. As a shrewd old Yorkshire horse-dealer once expressed it to the writer, "Your thoroughbred, sir, has always got a leg left, no matter how nasty a place ye gets him into, and he'll save your neck at the risk of his own."

The same is true of the dog, those breeds or individuals which are most distinguished for intelligence and courage being almost invariably those that are kept in or about the house, as trusted members of the family. Dogs which are kept in packs or kennels are usually distinctly inferior in intelligence and generally in courage. One of our most celebrated trainers gave it, as the secret of his success, that he got his dogs to "associate with him just as closely as possible." This is so generally recognised by dog fanciers that there is decided prejudice against "kennel-bred" dogs, who have been reared as it were by wholesale, usually with a number of others, fed by an attendant, and have had but little opportunity of getting attached to anybody. In fact, fully half of the justly vaunted intelligence of the dog depends upon the intimacy of his association with and affection for some man.

Nor is this interdependence between the civil virtues and intelligence, by any means limited to domestic animals. The wonderful architectural achievements of the beaver have their origin in the closeness of his social ties. The remarkable sagacity of the wild elephant is matched by the firmness of his social organisation while the baboon who is able to use sticks, stones, and thorns as weapons in his warfare or as implements in his food-getting and whose general intelligence is so great, that it is declared by the natives that he knows how to talk, but won't for fear he should be put to work, is equally remarkable for his co-operative powers, moving

to the attack or plunder in regularly-organised bands which obey a leader and post sentinels. These latter are not only heeded instantly, when they give the alarm, but several instances are recorded where they have apparently been tried and punished with death for failure to warn the band of danger. When retreating before a victorious enemy, if one of their number is intercepted or captured his comrades will rush to his rescue, or failing this, the leader has been known to return to his assistance single-handed.

And the case is even stronger when we come to the highest species of all. The most striking and influential characteristic of every tribe of the lowest degree of civilisation is its Ishmaelitic attitude—its hand against every man, and every man's hand against it. The thing that makes the Bushman, the Akka, the Tierra del Fuegian a savage and keeps him so, is not his lack of intelligence, for of this he possesses often a larger share than some of his brethren much higher in the scale. It is not the unfavorable nature of his climate or environment, nor the absence of animals suitable for domestication, but it is simply his inability or unwillingness to trust, not merely the members of other tribes, but the members of his own tribe, nay, the members of his own family sufficiently to co-operate with them in any way. Indeed, the short-livedness and fickleness of his kindly impulses may even prevent him from keeping and caring for any animal long enough to domesticate it, thus debarring him from taking the first step upward in the social scale. Kipling, in one of those wonderful flashes of insight into the very heart of things, which so often illuminate his pages has epitomised this attitude as that of "the desert where there is always war."

The frightful indifference of the savage to human death and suffering, not merely in respect to his enemies, but also in his own tribe, which leads him to squabble and fight to the death over the merest trifle, to kill the aged in times of scarcity, to systematically practise infanticide, and even to kill all who are seriously wounded after a battle or who appear unlikely to recover from illness, is by far the most powerful and fatal obstacle to his progress.

In the first place, this terrific waste of life, at every pore, as it were, keeps the tribe small and weak and absolutely prevents that

pressure upon each other and upon the means of subsistence which, as we shall show in another article, is the chief stimulus to industrial progress. In the second place, individual life is rendered so short and so uncertain, that absolutely all the energies of man are devoted to its mere preservation, with no time to spare for increasing its fulness or comfort. Thirdly, it can be convincingly shown that all those powerful influences for elevation, known as the natural sciences, botany, chemistry, astronomy, etc., had their origin to a large degree, in what could be broadly termed "medicine" and came into being very largely through that effort to preserve the helpless, protect the weak, and restore the sick, which this unsocial spirit so emphatically antagonises. And last but not least, this attitude of distrust and hatred absolutely prevents that co-operation, that division of labor, without which no substantial progress is possible. In so far as he hates, the savage is a savage, and will remain so. Whenever he begins to love he begins his upward progress toward civilisation at once.

In the lowest stages even the family tie was so loose as to furnish but little foundation for the formation of even the smallest group which could be united by mutual confidence and affection. Just as soon, however, as this becomes more stable, a small but wonderfully effective band is formed to serve as a nucleus for further development. The mother of course will always protect and befriend her child, but it is not until the father begins to take an active participation in the process that anything like a permanent group can be formed. So soon as this begins it is obvious that the father who protects his children most vigilantly in times of danger and watches over them most carefully in times of sickness, who shares his last portion with them in famine, will soon collect around him a larger and more effective family group than that of his more indifferent neighbors, and the advantages of "a family of tall sons" are still sung and recognised in every primitive community from our present Western frontier back to the times of Joshua.

The family group which follows out this line of conduct most persistently would reap cumulative beneficial effects with each coming generation. By this time it will have become large enough,

not only effectively to protect itself from the smaller groups by which it was surrounded, but also to be regarded by outsiders as a desirable body to become connected with by marriage, or in some other way. This would soon give it a pre-eminence in the tribe to such an extent, that its principle of conduct would become a rule for the majority of its tribal connexion, and this again, of course, would result in a still wider spread of mutual confidence and the possibilities of and practice in intelligent co-operation. Thus the living snow-ball would grow as it rolled, until the principle of co-operation having become instinctive in its members not only as regards all members of the family, of the clan, and the tribe, the same spirit would reach out towards some of its neighboring tribes and a confederation would be formed.

By this time the tribe would have grown in mass and in wealth, to such a degree that division of labor would not only have become possible but absolutely necessary. Animals would have been domesticated, weapons would be made by one man, clothing by another, ornaments by another; some rude knowledge of the medical virtues of plants and mineral earths would have been obtained, cookery would have made some progress, resulting in the possession of pottery and other utensils—and behold, the community is no longer savage, but has reached the next stage, that of barbarism. The same cohesiveness, which has made them strong for defence, has also made them powerful for attack and the conquest of neighboring tribes; or the occupation of new territories can now be attempted. This, by throwing upon them new demands both of climate, of methods of warfare, methods of agriculture, the necessity of overcoming rivers, mountains, swamps, and other natural obstacles, will stimulate the growth of the mechanical arts in every way, and the confederacy will rise rapidly in the scale. But even yet it is necessary that this same tolerant temper continue to be manifested. If its career is merely one of invasion and plunder or of extermination, its spread, though it may be brilliant, will be of but short duration, like that of the Huns and the Turks. But if, however, its treatment of conquered peoples is fair and honorable and they are given something of the rights and privileges which its

own members so dearly prize, then the confederacy will rapidly fuse itself into a nation; its progress will not be merely geographical but political, and its tides will swell toward the highest goal of national progress.

Even having reached this stage, no matter how great and powerful the nation may be, so long as it fails to accord to the subjects of other nations the same substantial rights and privileges which it cherishes so zealously for its own citizens, it cannot be regarded, in the full sense of the term, as civilised. Even to-day the most practical and striking division, between the civilised and uncivilised nations of the globe, is made by the test-question as to whether another nation can afford to permit her citizens to be tried anywhere, unreservedly, in its courts of law. Only a few years ago, for instance, this question was being seriously debated by the European powers in regard to Japan. The hope of all of us is, that that day is not far distant when this confidence in and affection for our brother man shall have spread throughout a still wider circle, so that not merely may individuals group themselves into families, families into clans, clans into tribes, tribes into confederations, and confederations into nations, but that the great nations of the world may group themselves together into a vast confederation of humanity, all of whose members shall be both fellow-citizens and brethren. Instead of being a mere episode in the march of civilisation, least of all opposed to its dominant factors, affection, with the confidence which is begotten of it alone, has been the very key-note of the process. And while the ties of blood and a pardonable pride of family may perhaps bias my judgment, yet it does seem to me, that the one thing which more than any other has been at the bottom of the wonderful colonising and empire-forming feats of the Anglo-Saxon, whether of Lesser or Greater England, has been his deep-rooted tendency toward fair, honorable, and even kindly treatment of the weaker races, with whom he has come in contact during his spread. Stern and unsympathetic he has often been, selfish and covetous of land or gold, but it has seldom been that an appeal to the inherent principles of human rights, a plea for justice, has fallen upon his ears unheeded. Although not always loved, he is invariably trusted by all with whom he comes in contact, even those who have most bravely and bitterly fought against him.

WOODS HUTCHINSON.

UNIVERSITY OF BUFFALO.

CAUSATION, PHYSICAL AND METAPHYSICAL

WE LIVE in a world where effect follows cause in an orderly and, it would seem, inevitable rhythm. It matters not where we tap the fount of scientific inspiration, we always find that the untiring search for the antecedents of any event is founded on the conviction that for that event there is some ascertainable cause. Even chance has yielded to the statistical method, so that its laws may be formulated. By dealing with larger and larger numbers we eliminate more and more the idiosyncrasies of the particular case. And thus we come to realise that what we call chance in the tossing of a coin is only our ignorance of the nature and immediate cause of these idiosyncrasies. Just in so far as our science or its application is imperfect, do we project upon the screen of nature, woven by our experience, the shadow of fortuity, blurring the details of processes which, to less imperfect mental vision, would stand out clearly as causally related. Thus it arises that, for those who have been led to this point of view, the doctrine of evolution, as applicable throughout the range of an experience which science indefinitely prolongs, gives expression to the daily strengthening belief that the state of matters at any given moment is the outcome of a state of matters in the preceding moment, and in like manner serves to determine the state of matters in the moment that follows.

It may be said, however, that what I have spoken of as chance was, with inferior knowledge perhaps but with greater reverence, regarded by our forefathers as a direct action of the Power that lies behind the fleeting phenomena of the material universe. All that modern science has done, it will be urged, is to bring into stronger

and stronger relief the fact that the nature of this Power is without variableness or shadow of turning. Science thus shows behind the multiplicity of phenomena the unity of the causal power. How far and in what sense this is true, it is the object of the present essay to discuss.

In my former essay on "The Realities of Experience"¹ I have endeavored to prepare the way for this discussion. It was there shown that both the physical and the psychological sciences deal with data afforded by experience; that the incontrovertible dictum on which they take their stand is *experientia est*, that the phenomena of the world, which through experience we construct, have a practical reality on which we may rely with implicit confidence; but that the sciences which take their stand on experience have no right to proceed a single step—to assert anything positive or negative—beyond that which is given in experience or securely founded thereon. I even ventured to say that in presence of the problems of causation, science is smitten with the dumbness of agnosticism; adding, however, that behind the realities of experience I, for one, believe in a causal reality which makes that experience possible and explicable.

Now, what in the name of reason is the meaning of these astounding contradictions? Almost in the same breath we are told that science has established the all-embracing sway of natural causation; and that science can tell us nothing whatever about this (or is it some other?) causation, in which we are none the less solemnly invited to believe! If the reader deem the matter worthy of his serious attention, he will not be unwilling to look into it somewhat carefully.

Glanvill in his *Scep sis Scientifica* says: "All knowledge of causes is deductive; for we know of none by simple intuition, but through the mediation of their effects. So that we cannot conclude anything to be the cause of another but from its continual[ly] accompanying it; for the causality itself is insensible." "What we call experience," said Hobbes, "is nothing else but remembrance of what

¹ *Monist*, October, 1897.

antecedents have been followed by what consequents." Such statements as these, which are quoted by Lewes, may have been the seeds which germinated in the mind of Hume and developed into his well-known theory of causation. In any case it is evident that he thought the matter out for himself with his customary vigor and independence. We may profitably make his treatment of the subject our starting point.

"When we look about us towards external objects, and consider the operation of causes," said Hume in that section of the *Enquiry* which treats of the Idea of Necessary Connexion, "we are never able in a single instance to discover any power or necessary connexion, any quality, which binds the effect to the cause, and renders the one an infallible consequence of the other. We only find, that the one does actually, in fact, follow the other. The impulse of one billiard-ball is attended with motion in the second. This is the whole that appears to the outward senses. The mind feels no sentiment or inward impression from this succession of objects. Consequently there is not, in any single, particular instance of cause and effect, anything which can suggest the idea of power or necessary connexion."

For a comprehension of Hume's conception stress must be laid, in this passage, on the words "in a single instance." When he says that we are never able *in a single instance* to discover any power or necessary connexion, these four words are not merely inserted to emphasise the *never*; they are to be taken literally. We are never able, from the study of a single and isolated case or example, to discover any power or necessary connexion. This appears more evidently in later passages.

"When any natural object or event is presented, 'tis impossible for us, by any sagacity or penetration, to discover, or even conjecture, without experience, what event will result from it, or to carry our foresight beyond that object, which is immediately present to the memory or senses. Even after one instance or experiment, when we have observed a particular event to follow upon another, we are not entitled to form a general rule, or foretell what will happen in like cases; it being justly esteemed an unpardonable temerity to judge of the whole course of nature from one single experiment, however accurate or certain. But when one particular species of event has always, in all instances, been conjoined with another, we make no longer any scruple to foretell the one upon appearance of the other, and to employ that reasoning, which can alone assure us of any matter of fact or existence. We then call the one object, *Cause*; and the other *Effect*. We suppose that there is some connexion between them; some power in the one, by which it infallibly

produces the other, and operates with the greatest certainty and strongest necessity.

"It appears, then, that this idea of a necessary connexion amongst events arises from a number of similar instances, which occur, of the constant conjunction of these events; nor can that idea ever be suggested by any one of these instances, surveyed in all possible lights and positions. But there is nothing in a number of instances, different from every single instance, which is supposed to be exactly similar; except only, that after a repetition of similar instances, the mind is carried by habit, upon the appearance of the one event, to expect its usual attendant, and to believe, that it will exist. This connexion, therefore, which we *feel* in the mind, or customary transition of the imagination from one object to its usual attendant, is the sentiment or impression, from which we form the idea of power or necessary connexion. . . . The first time a man saw communication of motion by impulse, as by the shock of two billiard balls, he could not pronounce that the one event was *connected*; but only that it was *conjoined* with the other. After he has observed several instances of this nature, he then pronounces them to be *connected*. What alteration has happened to give rise to this new idea of *connexion*? Nothing but that he now feels these events to be connected in his imagination, and can readily foretell the existence of the one from the appearance of the other. . . . When many uniform instances appear, and the same object is always followed by the same event; we then begin to entertain the notion of cause or connexion."

The first question we may ask concerning the views which are thus so clearly and forcibly expressed is this: Does Hume disclose anything beyond observable or frequently observed succession? Obviously not. Let us take a matter of common experience. The flash and the report of a distant cannon are so connected in experience that the occurrence of the one suggests the other through association. In Hume's interpretation, first, the visible flash is the antecedent of the heard report; secondly, the flash is the antecedent of an expectation or anticipation of the report; and thirdly, custom is the antecedent condition of the settled and established anticipation. Here we are simply describing certain facts of experience in terms of antecedence and sequence. Of any "power" or "strongest necessity" Hume should be, and I take it actually was, the last to see in mere custom the smallest indication. To modify the words of Hobbes without altering his meaning we may say: "What we call custom is nothing else but remembering what antecedents have been followed by what consequents"; and we may

add in the phrase of Glanvill "for the causality itself is insensible."

A second question may be put thus: Is anything gained by shifting the field of discussion from the physical to the psychological aspect of one common experience? Otherwise stated: Is there any advantage in dealing with the sequence, seen-flash—expectation-of-the-report, instead of with the frankly objective sequence, flash—report. In some respects there would seem to be a distinct disadvantage. For though in the subjective scheme on which we interpret experience the flash and the report stand in the relation of antecedent and sequent, in the objective scheme on which we interpret experience they do not stand in this relation. For experience itself discloses the fact that if we lessen our distance from the cannon the interval between the antecedent flash and sequent report is proportionally lessened. The two converge in time as we approach the cannon. Carrying this convergence to its ideal limit in the objective sphere, the two coalesce, and antecedence vanishes, at the cannon's mouth. Hence, in the objective interpretation of experience by physical science, the flash is not the antecedent or cause of the report. They are the diverse effects of an antecedent common to both. Of course there is no lasting and abiding discrepancy between the psychological and the physical interpretation of experience, in a scheme of knowledge that is adequately organised and correlated. But the fact that such organisation and correlation is necessary, should warn us against any limitation of the discussion of causation to the subjective sphere of impressions and expectations. It need hardly be said that this does not imply any forgetfulness of the fact that there is a subjective aspect in all experience, and in every stage of its interpretation. This we may now take for granted; and we may say that experience, whether we regard it objectively or subjectively, affords certain observable sequences which in any consistent interpretation must be duly correlated. We thus come back to what may be regarded as Hume's primary contention which may be thus summarised. All that is disclosed in the objective treatment of experience may be expressed in terms of actually observed antecedence and

sequence. "The scenes of the universe are continually shifting, and one object follows another in uninterrupted succession; but the power or force, which actuates the whole machine, is entirely concealed from us, and never discovers itself in any of the sensible qualities of body."

And so we may pass on to our third question. Is this way of regarding causation accepted by modern science? But in order to lead up to an answer to this question we must consider briefly in what respects the conceptions of science differ from the raw material of sensory experience.

It is clear that the conceptions of science are mental products. They form part of an ideal scheme, often highly abstract and generalised, by which we interpret the phenomena of our sensory experience. The law of gravitation is an abstract and general formula applicable to any one of the thousands of particular cases of gravitative attraction which may at any time, and in any part of the universe, be presented to our observation. The law that the tide-producing influence of any celestial body varies directly as its mass and inversely as the cube of its distance from the Earth, is a formula which results from a consideration of the differential effects of gravitative attraction on a body which is in part rigid and in part mobile. That such abstract formulæ and general schemes for the interpretation of a multiplicity of particular cases, are what we may term "constructs" of the human mind, needs no further illustration. But it is obvious that our treatment of experience in the foregoing essay precludes our saying that, save in their abstract and general nature, the constructs of science differ in any essential aspect from the constructs of sensory experience. For the latter no less than the former are mental products; and they are constructs in so far as the immediate data of sense are supplemented by the associated products of past experience revived in memory. A subtle and characteristic scent leads me to construct violets; a sound in the street leads me to construct tram-car; the sight of distant specks of grey on the swelling chalk downs leads me to construct sheep; and so on in a thousand familiar cases. This whole range of our sensory experience is a mental product; and every object

therein is a construct, or, as Dr. Johnstone Stoney terms it, a *syntheton*, of which sense supplies the nucleus and memory fills in the rest.

Shall we then discover a distinction in the fact that the constructs of sense have an objective reality which is lacking to the more abstract and general constructs of science? That depends on how we define the term objective, and on what we understand by reality. Subject and object are, in our interpretation, products of the analysis of experience. Both are implicit in every definite item of human experience; both may be rendered explicit in thought as distinguishable but inseparable. Now if we limit the term "objective" to one aspect of this *sensory* experience then it will follow that, by definition, the constructs of sense have an "objective" reality which is lacking to the constructs of science. But such a limitation is arbitrary and leads rather to confusion than to clearness of ideas. We commonly speak of objects of thought, objects of desire, objects of reverence, and so forth. It is more consistent and more helpful to regard all experience, sensory and super-sensory alike, as susceptible of analysis into an objective aspect and a subjective aspect. In which case the conceptions which form the constructs of science constitute, from the appropriate standpoint of analysis, an objective scheme which we, so to speak, project on to the screen of the phenomenal universe.

As to the reality of the constructs of science, that is their inalienable right as products of the widened experience of rational beings. *Experientia est*. To say that they are products implies that they are real products in the sense I endeavored to make clear in my former essay. But if the word "real" be used, as it often is, as the equivalent of "valid," then we may say that the constructs of science are valid just in so far as they fulfil their purpose of enabling us to interpret the particular phenomena to which they are applicable. The ideal scheme of science must fit the facts whenever and by whomsoever it may be applied as a canon of interpretation. If the scheme fits, under all possible circumstances within the sphere of its appropriate application, it is as real and

valid as anything within the range of human experience can possibly be, *by the force of habit or habit alone*—*by the force of habit alone*. It is therefore not in any lack of reality or of objective import that the constructs of science differ from the constructs of sensory experience. It is their abstract and general character which alone distinguishes them. We may add, however, that there is another feature about them which Dr. Karl Pearson well expresses by saying that they have been carried in thought to their ideal limits. Take the law of gravitation for example. It is sometimes asked, by what right we assume from a limited number of observations—very numerous perhaps but still limited—that the law is universal; and, further, by what right we assume from measurements limited in accuracy—very accurate, no doubt, but still falling short of that which is absolute—that in no particular case is there any variation, even by so much as a hair's breadth, from the formula which Newton expressed in mathematical terms. The answer is that we carry our law to an ideal limit unattainable by sense and by practical measurement. We assume that it is absolutely and universally true because in no case has it been shown to be actually and observably false. We sweep our ideal curve through the recorded data of physical measurement and regard the minute deviations of the actual from the ideal as due to errors of observation. We trust to a reality of thought which we believe to be truer and wider than the realities of sense. *and on the whole the metaphysical sense is no explanation in the metaphysical sense*. Thus we use the conceptual constructs of science, carried in this way to their ideal limits and rendered absolute for thought, to explain the phenomena presented to our observation in the field of sense. But here we must pause again for a moment and render clear the meaning which attaches to the word "explanation." What, it may be asked, is the law of gravitative attraction, but a highly general and abstract *description* of certain facts and phenomena stripped of merely incidental errors of observation? Given certain antecedent conditions, certain consequent events follow. That is all. There is no explanation, not even an attempt at explanation, which shall afford an answer to the question why they should thus follow. Your law, it will be said, presents us with the *how* of gravi-

tative attraction in convenient schematic form. It tells us nothing of the *why*. If a boy asks why a stone falls to the earth, you do not reply: Because of the law of gravitation. Or if you do, he will, if a tolerably sharp lad, make answer: But I understood you to say that the law is an ideal construct to enable us to interpret the facts, whereas now you seem to tell me that it somehow constrains the stone to move toward the earth!

The truth is that the word "explanation" is used in two senses; in what we may term the scientific sense and in the metaphysical sense. When we refer a given fact of observation to the general law under which it falls, we are said to give a scientific explanation of the fact. Thus we explain the magnifying power of a pocket lens by bringing the particular phenomena under the general laws of refraction. We explain the easting of the trade winds in terms of the differential velocity, under rotation, of the tropical and equatorial zones. We explain the formation of hoar frost by showing that, when the dew-point is below the freezing point, water-vapor condenses in the form of crystalline needles of ice. In a word, the explanation, in this sense of the term, exhibits the relations of particular phenomena to the abstract constructs of science. Hence the fall of a stone to the earth is explained by referring it to the law of gravitation. But in none of the cases above adduced, which may be taken as sufficiently typical examples, is there any explanation in the metaphysical sense. In no case are they referred to an ultimate underlying Cause. The constructs of sensory experience are accepted as data; the constructs of science are built upon them in conceptional synthesis; the ideal scheme is repeatedly applied to phenomena for purposes of interpretation; observed facts are again and again referred to the ideal scheme for scientific explanation. But why the facts and the sensory data are what they are and as they are, is a question for metaphysics, not for science. If an answer to this question can be given, it will be an explanation in the metaphysical sense.

The observable sequences of natural phenomena as given in practical experience may here be distinguished from the inevitable sequiturs of logical thought. Of the former we can only say (apart

from some metaphysical explanation) that they are; of the latter we may say that they *must be*. That the three angles of any plane triangle must be equal to two right angles, or that the square described on the hypotenuse of any right-angled triangle must be equal to the sum of the squares on the other two sides, are inevitable sequiturs for all who accept the postulates, and understand the ideal scheme, of geometry. These statements not only are true, but they must be true *within that ideal scheme*. That an unsupported stone falls to the earth with a given acceleration, as a natural phenomenon is simply an observable fact; as a natural phenomenon there is (apart from metaphysics) no "must be" in the case. The idea of necessity only arises when we incorporate the facts in an ideal scheme of physics. Assuming the universality of the law of gravitation we may then say that, apart from disturbing influences, the stone must fall to the earth. But it is clear that the necessary and inevitable sequitur lies in the scheme of logical thought; and not in the observable sequences on which that scheme is founded. From the point of view we thus reach it may be said that any necessity we may ascribe to the observable sequences of natural phenomena is an importation from the products of our logical thought.

So far we have been endeavoring to make clear the nature of explanation and the relation which an ideal scheme with its logical sequiturs bears to natural phenomena with their observed sequences. We are now in a position to return to the third question we asked concerning Hume's doctrine of causation: Is his main contention accepted by modern science? That contention we summarised as follows: All that is disclosed in the objective treatment of experience may be expressed in terms of actually observed antecedence and sequence. If we ask what is the cause of the attraction, by the earth, of an unsupported stone, we shall perhaps be told "the force of gravity." And if we require more exact information, expressed in general terms, it will be said that every substance in the universe attracts every other substance with a force jointly proportional to the mass of the attracting and of the attracted body, and varying inversely as the square of the distance. How does

this force, as the cause of attraction, square with Hume's conclusion? Is there an observed antecedent "force" and then an observed sequent "attraction"? Surely not. From the physical point of view it is all one whether we say the force of gravitative attraction or the attraction of gravitative force. For physics the attraction and the force are identical. We may cut out all reference to force in the above statement of Newton's law without detracting from its scientific value, and say that every substance in the universe attracts every other substance *in a degree* jointly proportional to the masses and inversely as the square of their distance. That is a statement of observed and observable phenomena. And many physicists are content to restrict the term "force" to an expression, in mathematical formula, of the measure of intensity. For them physical causation may be expressed in terms which are essentially those of antecedence and sequence. Others, however, while they adopt this usage, give also another and distinct definition of force, as the cause of motion. It is not for an outsider to decide between contending giants. But to an outsider it seems perfectly clear that if force be regarded as the cause of motion, the word "cause" is used in a sense quite different from that which is founded on the conception of antecedence and sequence.

Let us frankly accept this conclusion. And let us speak of physical or scientific causation which refers events to their antecedents, generalising the results of observation in an ideal scheme of physical science; and let us speak of metaphysical causation which seeks to get behind or beneath phenomena and to give the *raison d'être* of their being, generalising its conclusions in an ideal scheme of metaphysical interpretation. And, with this distinction in view, let us proceed to consider physical causation a little more closely that we may see how far and with what amendments modern science accepts Hume's doctrine. Three points may be noticed.

Hobbes, in a passage which is quoted by Jevons, brought out an important feature when he said: "A cause is the sum or aggregate of all such accidents, both in the agents and the patients, as concur in the producing of the effect propounded; all which existing together, it cannot be understood but that the effect existed

with them; or that it can possibly exist if any one of them be absent." Mill accepted and endorsed this view. "The real cause," he said, "is the whole of the antecedents; and we have, philosophically speaking, no right to give the name of cause to any one of them exclusively of the others." True and important, "philosophically speaking," as is this identification of the cause with the totality of the antecedent conditions, it is none the less true that "scientifically speaking" it is the aim of physics to isolate the factors of phenomena and to disentangle the threads which are woven into the totality of antecedent conditions. It is this disentanglement which serves, in part at least, to distinguish the ideal scheme of physics from the complex web of natural phenomena which with ever-increasing success it enables us to interpret. At the same time it should be noted that this method of scientific procedure does not at all invalidate Hobbes's contention. For though physics adopts the method of analysis with a view to isolating the factors of causation, it still remains true that, when its results are applied to a complex phenomenon such as Hobbes had in view, no interpretation can be satisfactory unless all the co-operating antecedents are represented synthetically in due quantitative proportion. Accepting, therefore, the validity of Hobbes's contention that the cause is the totality of the conditions, we may add, as a rider, that science analyses this complex into its factors and utilises the results of its analysis in synthetic interpretation.

2. Hume's doctrine on the effects of custom and habit led him, no doubt, as Reid pointed out, to exaggerate the importance of the repetition of experience. When the conception of uniformity has been reached, a single accurate and precise determination of the essential antecedent conditions is sufficient. The value of repetition is, first, to eliminate errors of observation, and secondly (where others repeat the observations of the original investigator), to ensure the social validity of the conclusion, and to make allowance, if necessary, for the personal equation. Hume's error, if such it be regarded, arose from the fact that he had a double purpose in view; first, to show how the conception of uniformity arises, and secondly, to interpret causation in terms of observable sequence.

3. Much has been written concerning the time-element in causation; and it has been urged that, since the cause shades insensibly into the effect, so that it may even be said that the effect is already precontained in the conditions, the time-element must be excluded, and with it, therefore, must go the whole conception of antecedence and sequence. Not a little confusion has, however, arisen from a failure to distinguish physical from metaphysical causation. In the latter, as we shall see, the time-element is absent; but in physical causation it is essential. But though it is essential, it is, after the method of science, carried in thought to its ideal limit. For an adequate conception of physical causation, as interpreted synthetically by modern science, two essential ideas have to be borne in mind. First, the continuity of progress wherein there is a constant shading and passage from antecedent into sequent; and secondly, the ideal nature of the boundary between the one and the other. For the purposes of our thought we draw this ideal plane, at any moment we wish to select, through the onward-flowing stream of events. The totality of conditions on the one side of this dividing plane we term the cause, the totality on the other side of the plane we call the effect. But the dividing plane has no existence save for our thought; and its time-breadth, reduced to its ideal limit, is for that thought infinitesimal. It is like the philosophical concept of the present,—the mere dividing line between the past and future. When we narrow down our consideration of physical causation to its ideal limits, we place ourselves on this dividing line and see cause pass into effect as the stream of phenomena crosses the boundary.

Such, I take it, is the conception of physical causation we reach when we reduce the notion of sequence to its ideal limits. It is the doctrine of Hume translated from the region of practical observation into the region of conceptual thought founded thereon. And in this sense we may say that modern science accepts the doctrine in its essential features. Why the sequence is of that nature which we find it to be in the data of sensory experience, physical science as such, does not, I conceive, attempt to explain. Here

are the facts as practically given ; that is an end of the matter so far as physical science is concerned.

Some physicists are, however, as we have already noticed, unable to accept this limitation. They define force as a cause in a sense wholly different from that in which this term is used as the equivalent of antecedent. But they do so as metaphysicians not as physicists. They supplement that kind of explanation which we term physical by the totally different kind of explanation which should in strictness be regarded as metaphysical. Force as a cause of motion is not its antecedent but its *raison d'être*.

The origin and justification of such procedure would seem to be somewhat as follows : First as to origin. Certain objective sequences are given, as matter of fact, in sensory experience. The terms of any sequence, so given, are, as Hume contends, conjoined but not connected. By analysis, generalisation, and synthesis we frame an ideal scheme of physical science, founded on the data of experience. Within this scheme the terms are not merely conjoined, but are logically connected for rational thought. We then project into the mere sequences, given in sensory experience, connexions analogous to those which obtain within the ideal scheme of physical science. We make the connexions part of our completed construct. So much for origin ; now for justification. The ideal scheme of physical science is admittedly rational and connected. But when this scheme (which is the product of rational thought) is applied to the data of sensory experience (which are independent of our rational thought and over which reason has no control) it is found to fit the given sequences. Hence, just in so far as the connexions of the ideal scheme coincide with the sequences of sensory experience, may we assume that these sequences have an underlying connexion which metaphysics endeavors to formulate. In brief therefore the justification runs thus. The constructs of physical science supply us with an ideal scheme which is connected, rational, and explicable. But this scheme seems to fit the constructs of sensory experience. Hence they too are assumed to be connected, rational, and explicable.

It may be said that, since the ideal scheme of physical science

is founded on the data of sensory experience, its connexions are derived from, and not imported into, the sequences of natural phenomena. But it is clear that, unless we are to deny in our conclusion what is granted in our premises, this is no argument against some metaphysical connexion. It merely asserts that the connexion is already there awaiting our discovery. A more plausible criticism is that since the sensory data form part of the experience of a rational being they must, as such, be logically connected. But the sensory data are not the product of our rational thought. And if they were, what ground would there be for the contention that they are merely observable sequences without underlying connexion? It is this contention which the metaphysician deems inadequate and desires to supplement by his doctrine of causation.

Here it will be necessary to make a fresh start and approach the problem by a somewhat different path. It will be remembered that, in my former essay, the question: How is it that we have sensory experience? was passed by as one involving a metaphysical answer. Speaking of the milestones on the Dover road I said: "And if it be contended that something, at any rate, does exist, independently, which generates, or is the occasion of, the several experiences of those who journey along the Dover road, I am certainly not prepared to deny the statement; but it belongs to the domain of metaphysics, not to that of practical knowledge." The real question here is: What causes experience? And this question cannot be answered in terms of physical antecedence but only in terms of metaphysical causation. The practical man in the street, who does not realise that he is a metaphysician *malgré lui*, may be inclined to doubt this. But it cannot be seriously questioned by any one who considers the nature of the inquiry. Physical causation deals with antecedence and sequence as given in experience. But that which we now wish to ascertain is what calls experience into being. The separation of a stone from the earth is the antecedent condition of its fall; but if we ask, what makes it fall, we are constrained to have recourse to the metaphysical conception of gravitative force. Even if we could say with any certainty that the physical antecedent is some kind of ethereal stress, we should still

have to ask, what makes the ether "stressy." Push any physical or scientific inquiry deep enough, and you get the general reply, "That's the way things are constituted." And man the metaphysician will still want to know what is the cause of this constitution.

Of course I am fully aware that many philosophical agnostics contend that the modest and honest attitude in face of such inquiries is a confession of ignorance. "We don't know and there's an end on't." But it is, rightly or wrongly, characteristic of the metaphysician that he cannot rest content with this reply at this stage of the inquiry. He must endeavor to get a little deeper down and frame a wider construct, even if he then, in his turn, must make confession of ignorance of its nature independently of our rational thought.

Let us see then how metaphysics sets to work and what kind of suggestion it has to offer. It proceeds on the method of science and frames an ideal scheme. And it tests the validity of the scheme by applying it to the phenomenal universe, as interpreted by physical science, to see how it fits. If the ideal scheme, fashioned by human reason, when superimposed upon the sensory data, over which reason has no control, is found to coincide, metaphysics regards this as the only possible, but at the same time the rationally sufficient, guarantee of its validity. Sensory experience discloses a sequence of phenomena. If we ask why this sequent follows that antecedent, experience and physical science can give no answer. They can only say: Such are the facts as given. Metaphysical assumptions give an ideal scheme as a framework, supplying the threads on which the passing beads are strung.

A fundamental assumption of metaphysics is the continuity of that existence which is capable of acting as cause. Of this existence the data of sense-impressions are regarded as the effects. The effects may come and go, with the opportunities of experience; but the existence by which they are caused persists. As people pass to and fro along the Dover road, the mile-stones pop in and out of experience; but the existence which causes these fleeting effects remains and abides. The discontinuity of sensory experience is supplemented by the continuity of metaphysical existence. John

Stuart Mill, who is not generally regarded as a champion of metaphysics, would describe the mile-stones as "permanent possibilities of sensations." But whence did he derive the permanence? Not from experience: for experience, which relies solely on its own data, has no right to go beyond them, or to make any assertion, positive or negative, as to what exists in the absence of experience, when no one is travelling along the Dover road. There seems to be little difference between a permanent possibility of sensation and a continuous existence capable of acting as cause. But the former is pseudo-experiential and the latter is frankly metaphysical. The ideal scheme of metaphysical existence is however to be regarded, like the ideal scheme of physical science, as a construct of the human mind, valid just in so far as it fits the facts. Though here again the accord of a rational scheme with the observable data of experience may be regarded as presumptive evidence of the rational character of these data.

It may be said that the continuity and rationality of causal existence are after all nothing more nor less than our old friends the uniformity of nature and the universality of physical causation masquerading in metaphysical disguise. To which the metaphysician's reply is that, just in so far as the nature, of which uniformity is predicated, is a *connected whole*, and not merely a given series of observed, remembered, or anticipated experiences, are metaphysical assumptions inevitable, whether the man who makes or accepts them realizes their true character or not. Furthermore, for the thoroughgoing experientialist, the so-called uniformity of nature is nothing more nor less than the uniformity of experience. He who believes in a material universe which exists independently of our experience, and teaches that this material universe is the cause of our sensory impressions and the like, is committed to a metaphysical proposition which the experience on which he relies can never be in a position to demonstrate. And so we seem to be fully justified in asserting that just in so far as the uniformity of nature is held to be a cause of (and not merely a convenient expression for) the uniformity of experience it is a metaphysical and not a physical conception.

If we thus assume, as a fundamental postulate of metaphysics, an existence which is the cause of the sequences our sense-impressions present, we cannot regard it as, in its essential nature, like these impressions; for, to quote Glanvill once more, "the causality itself is insensible." It is unnecessary here to repeat the arguments of Berkeley and his modern disciples, by which it is, to my mind, conclusively shown that this existence, as cause, cannot be reasonably supposed to resemble the sense-products which are its effects in human experience. Those who understand the physiology of sensation and realise that what we call a visual impression is the concomitant of certain molecular vibrations in the grey matter of the brain, and that the brain particles are separated from the retinal image (to say nothing of all that lies beyond) by a tract of nerve-fibres conveying physiological impulses of whose nature we know little—those, I say, who realise all this, can hardly expect to convince us that the product in conscientiousness resembles in any conceivable way the cause which calls it into being. Philosophical materialism is, however, already so completely dead that it is superfluous to belabor its defunct corpse.

At the present stage of our inquiry it is, indeed, impossible to make any suggestion as to the metaphysical nature of that existence which we assume to play the rôle of cause. Carrying the conception to its ideal limits we may indeed predicate universality—on the lines of the scientific conception of universal gravitation. Thus regarded as universal, time-reference and space-reference would seem to become meaningless. The universalised present tense is alone admissible. When we speak of universal gravitation, we do not say that it was or will be; we use this comprehensive "is." We mean that substances always attract each other under the appropriate conditions. Time-reference is only applicable to the particular instances of such attraction as they fall under consideration. So is it with the existence which acts as cause: *It is*. The expression First Cause, if used with time-reference, is wholly misleading. It is probably a legacy of the confusion of thought between physical and metaphysical causation. The cause, as antecedent, is itself caused by a previous antecedent, this by an-

other, and so on in an indefinite retrogressive series, at the very beginning of which the First Cause was conceived as the very originating antecedent. On which follows the pertinent question, Why stop here? Presumably you do so simply because you do not know the antecedent of your First Cause. Why should I not stop just one stage short of your completed series and begin with what you term the second cause? The mistake, of course, is to confuse the conception of antecedent (which belongs to physical causation) with the metaphysical *raison d'être* implied on conception of a so-called First Cause. For metaphysics cause and effect are the two aspects, experiential and existential, of the same reality. They are simultaneous not successive; one on the hither side, the other on the further side, of the phenomenal veil. And the question—what is the cause of the cause?—is sheer nonsense, since it implies a misconception of the meaning of the term as used in a metaphysical as contrasted with a scientific scheme.

The absence of all space-reference, as applicable to metaphysical existence, involves further the exclusion of any conception of the cause as external. Externality, like time-sequence, is an idea based on sensible experience and has no place in the metaphysical construct. The existence as cause is conceived not as external to the phenomena and producing them from without, but as co-extensive with the universe of experience and as everywhere immanent. Here again we are but carrying a conception to its ideal limits. We have seen that physical causation, carried to its ideal limits, places the antecedent and sequent on either side of a boundary line which is conceived as in itself timeless and spaceless. Herein lies the metaphysical connexion between the conjoined phenomena. But such an ideal boundary may be drawn anywhere and at any time in the flow of natural events. Hence the conception may be universalised and conceived as everywhere and always within the connected phenomena, whenever and wherever they occur.

Thus we reach the metaphysical conception of a unifying existence, omnipresent in space and time, and immanent, founded on the conviction that experience is rational and explicable—a conviction

tion without which the search for knowledge is a vain and illusory dream-quest.

It only remains to point out, or to repeat, that the metaphysical scheme is a construct of the human mind. If it leads us to believe that behind the realities of experience there is a causal reality which makes that experience possible and explicable, we must remember that metaphysical existence is a reality *for rational thought*. And if, in Kantian phrase, we speak of this existence as *noumenal*, as contrasted with the phenomenal data of sensory experience, we must define "noumenal" as that which exists for thought but not for sense, and has for thought a reality analogous to that which is the indefeasible right of sensory experience. Science presents us with an ideal scheme formulated in terms of antecedence and sequence; metaphysics with an ideal scheme by which this antecedence and sequence may be rationally explained. If we admit, with Hume, that natural phenomena are merely conjoined, we may none the less claim that a causal nexus is a fundamental postulate of rational thought.

C. LLOYD MORGAN.

BRISTOL, ENGLAND.

ON THE PHILOSOPHY OF LAUGHING.

LAUGHING is the privilege of man, and we should expect that it has a profound and philosophical background. Not only that we laugh at all, but as a rule also what we laugh about is a matter of great significance. But although laughing is one of the peculiar characteristics of man, we cannot say that the more a man laughs the more human he is. It is a prerogative, yet its use is limited, and it serves man as a relaxation only in the gravity of life; it is a kind of compensation for the seriousness of his duties.

Laughter is like the rainbow which originates through a sort of contrast of sunshine with rain. The dark background is needed, otherwise laughter would lack color. Take away the merry form in which fun is dressed, and you will find a very serious idea at the bottom of the object of all mirth. The higher the waves of humor rise, the deeper usually and the profounder is the earnestness of their hidden meaning. *Don Quixote* is exceedingly enjoyable, but it is also a satire and a very drastic one. Its melancholy moral is the condemnation of a misguided idealist; its inmost truth is a sad lesson. The comedies of Aristophanes, such as *The Birds* and *The Clouds*, are droll and frolicsome, but how terrible is the subject of every one of them! *The Clouds* depict the philosopher Socrates, whose eventual martyrdom is known; and *The Birds* are a humorous criticism of the Sicilian expedition undertaken with confidence and extravagant hopes but ending in the wreck of the whole Athenian navy and army, so that literally not one man escaped to tell the tale.

Comedy and Tragedy are akin. Both combat the insufficiency of the world and show us the way to conquer it. Tragedy exhibits

the struggle for ideals, to be fought with the bad, the unmoral, and the dark principles of the world, which by comedy are humorously castigated in their more trivial manifestations.

The world in its fundamental constitution is a unity which finds expression in the harmony of the laws of nature. The eternal divinity of the world is one with itself. But the actual details of reality present a constant restlessness. Life is a struggle in which the equilibrium of absolute satisfaction is necessarily unattainable. The union of organised life is constantly jeopardised by all sorts of evil, which apparently justify both a dualistic philosophy and its correlate, a pessimistic view of existence. Yet through danger and death the unity of the whole can be restored; the problems of our doubt find eventually their solution, and the idea of monism will prove victorious in the end. In spite of all wickedness and mischief we cling to the standard of ideal aspirations, and our misfortune serves but to give our will a deeper root in the eternal order of things by transfiguring our being with the divine purpose of the whole. Thus pessimism will naturally lead to meliorism.

Life is serious, and if we could see all the misery of life at once it would so oppress us that we would long to die. But because life is serious, and because we need a buoyant spirit to fight the struggle of life bravely, we need as a temporary relief from time to time a hearty laugh. The man who always laughs lacks seriousness, he is silly. Constant laughing betrays a fool. But a man who cannot laugh had better consult his physician. He is sick. He is devoid of that elasticity of spirit which is so necessary for carrying the burden of life with ease and in good grace. He will not live long and had better attend to his last will. Laughter is a medicine that will heal sour dispositions and a bad temper or alleviate the loss of fortune and the buffets of ill luck.

It is a royal gift to be able to tell the truth with jokes and teach a lesson under laughter, as Horace says, "*ridentem dicere verum*." Wilhelm Busch, the famous author of *Max und Moritz* has succeeded in giving to the world an exposition¹ of his philoso-

¹ *Eduards Traum*. By Wilhelm Busch. 1891. München: F. Bassermann.

phy in the report of a dream which is partly satirical, partly humorous, and full of the most ridiculous incidents.

The import of laughing as a wholesome factor in life can scarcely be underrated and has been freely recognised by some of the most serious thinkers of mankind. But the question rises, Why does man laugh? What is the comical, the ridiculous, i. e., the laughter-eliciting object, that something at which we laugh? Is it a fact that exists in reality, or is man's laugh purely a product of his subjective conception? What, in fine, is the nature of the ridiculous in all its various forms? What is the physiology of laughter, what its *raison d'être*? What is the law through which it exists? What are the conditions of its origin? In brief, what is its significance in the economy of nature?

A thorough investigation of the philosophy of laughter would fill volumes, but we may be permitted to skim the subject and present to our readers a few thoughts touching on the salient points without promising an exhaustive treatment.

Laughter is an outburst of sentiment, which, however, is limited to the realm of rational mentality. By virtue of its spontaneous nature it has been classified among the reflex phenomena of the organism and so would possess a certain resemblance to sneezing and coughing. But granting that laughing is a reflex, we must bear in mind that it is a mental reflex; it is an immediate response to a stimulus. The comical does not tickle the diaphragm but the intellect. It is a physiological not a mental stimulus.

Aristotle, in speaking of comedy, explains the nature of the ridiculous (*τὸ γελοῖον*) in his *Ars poetica* as follows:

"The ridiculous is something that is faulty and ugly, if painless and not injurious.¹ Thus, for instance, a ridiculous farce is something deformed and distorted without pain."

Cicero, in his discourses on Oratory and Orators, is apparently under the influence of Aristotle. His terms "*turpitudine et deformitas*" are unquestionably a translation of *ἀμάρτημά τι καὶ αἰσχος*. Cicero introduces Cæsar's opinion on wit, which is said to be a gift of nature not subject to rules. Cæsar says:

¹ ἀμάρτημά τι καὶ αἰσχος ἀνόδυνον καὶ οὐ φθαρτικόν.

"I think that a man who is not destitute of polite learning can discourse upon any subject more wittily than upon wit itself. Accordingly, when I met with some Greek books entitled *On Jests*, I conceived some hope that I might learn something from them. I found, it is true, many laughable and witty sayings of the Greeks; for those of Sicily excel in that way, as well as the Rhodians and Byzantines, but, above all, the people of Attica. But they who have attempted to deliver rules and principles on that subject, have shown themselves so extremely foolish that nothing else in them has excited laughter but their folly. This talent, therefore, appears to me incapable of being communicated by teaching. As there are two kinds of wit, one running regularly through a whole speech, the other pointed and concise; the ancients denominated the former humor (*Cavillatio*), the latter jesting (*Quippe*). Each sort has but a light name, and justly; for it is altogether but a light thing to raise a laugh."

Cicero's further exposition of the subject, the main passages of which are again accredited to Cæsar, is apparently a diligent digest of the opinions of classic antiquity. We may be pardoned for quoting large extracts from this chapter because the views presented in it have influenced almost all later authors who have written on the subject, and not everybody has his Cicero handy. Julius Cæsar in reply to some questions and objections of Sulpicius, Crassus, and Antonius, says:

"Concerning laughter, there are five things which are subjects of consideration: one, 'What it is;' another, 'Whence it originates;' a third, 'Whether it becomes the orator to wish to excite laughter;' a fourth, 'To what degree;' a fifth, 'What are the several kinds of the ridiculous?' As to the first, 'What laughter itself is,' by what means it is excited, where it lies, how it arises, and bursts forth so suddenly that we are unable, though we desire, to restrain it, and how it affects at once the sides, the face, the veins, the countenance, the eyes, let Democritus consider; for all this has nothing to do with my remarks, and if it had to do with them, I should not be ashamed to say that I am ignorant of that which not even they understand who profess to explain it. But the seat and, as it were, province of what is laughed at (for that is the next point of inquiry), lies in a certain offensiveness and deformity; for those sayings are laughed at solely or chiefly which point out and designate something offensive in an inoffensive manner. But, to come to the third point, it certainly becomes the orator to excite laughter; either because mirth itself attracts favor to him by whom it is raised; or because all admire wit, which is often comprised in a single word, especially in him who replies and sometimes in him who attacks; or because it overthrows the adversary, or hampers him, or makes light of him, or discourages, or refutes him; or because it proves the orator himself to be a man of taste, or learning, or polish; but chiefly

because it mitigates and relaxes gravity and severity, and often, by a joke or a laugh, breaks the force of offensive remarks, which cannot easily be overthrown by arguments. But to what degree the laughable should be carried by the orator requires very diligent consideration."

"The first point to be observed is, that we should not fancy ourselves obliged to utter a jest whenever one may be uttered. A very little witness was produced. 'May I question him?' says Philippus. The judge who presided, being in a hurry, replied, 'Yes, if he is short.' 'You shall have no fault to find,' said Philippus, 'for I shall question him very short.' This was ridiculous enough; but Lucius Aurifex was sitting as judge in the case, who was shorter than the witness himself; so that all the laughter was turned upon the judge, and hence the joke appeared scurrilous. Those good things, therefore, which hit those whom you do not mean to hit, however witty they are, are yet in their nature scurrilous; as when Appius, who would be thought witty—and indeed is so, but sometimes slides into this fault of scurrillity—said to Caius Sextius, an acquaintance of mine, who is blind of an eye, 'I will sup with you to-night, for I see that there is a vacancy for one.' This was a scurrilous joke, both because he attacked Sextius without provocation, and said what was equally applicable to all one-eyed persons. Such jokes, as they are thought premeditated, excite less laughter; but the reply of Sextius was excellent and extempore: 'Wash your hands,' said he, 'and come to supper.'"

"Nasica, having called at the house of the poet Ennius, and the maid-servant having told him, on his inquiring at the door, that Ennius was not at home, saw that she had said so by her master's order, and that he was really within; and when, a few days afterward, Ennius called at Nasica's house, and inquired for him at the gate, Nasica cried out that he was not at home. 'What,' says Ennius, 'do I not know your voice?' 'You are an impudent fellow,' rejoined Nasica; 'when I inquired for you, I believed your servant when she told me that you were not at home, and will not you believe me when I tell you that I am not at home?'"

Horace in his *Ars poetica* gives us a practical illustration of his theory of the ridiculous; he says:

"Humano capiti cervicem pictor equinam

Jungere si velit, et varias inducere plumas.

Undique collatis membris, ut turpiter atrum

Descinat in pisces mulier formosa superne,

Spectatum admissi risum teneatis, amici?

Which means: If a painter should place a human head on a horse's neck, adorn it with feathers and attach to it limbs of all kinds, making it above a beautiful woman and below a fish: would you not laugh if you saw it?

Doubtless we should laugh if we saw things joined together that did not agree; but we should probably not laugh so much at the picture as at the artist who had such odd ideas and painted them where they were out of place. No one laughs at a griffin on a coat of arms or at a sphinx in a masonic temple. At mermaids in fairy tales who are beautiful women above but have ugly fish-tails below, we do not laugh; for there we naturally expect to meet with grotesque forms. The first picture of Boecklin will strike us as extremely funny, but as soon as we know that such is the artist's style, that he paints nothing but Nereids, centaurs, and other fabulous creatures, his mannerism will no longer be regarded as comical.

Modern explanations of the nature of the ridiculous do not greatly depart from the Aristotelean idea. Kant's theory of the ridiculous is interesting but unsatisfactory. "The cause of laughter," he says, "is the sudden transformation of a tense expectation into nothing." Kant's best example is the story of a Hindu who, seated at the table of an English gentleman in Surat, saw a bottle of ale opened from which the froth came out profusely and violently; he expressed his surprise at the unwonted sight and said in explanation of his astonishment: "I do not wonder at its coming out, but how any one could have put so great a mass of foam into so small a bottle, I cannot understand." It is natural that we laugh at the Hindu, but we do not laugh, as Kant says, because our expectation which has been held in a state of tension, when relaxed, suddenly disappears into nothing; we simply laugh at the ignorance of the man who seeks the difficulty in a wrong place.

Another of Kant's stories is this. A circle of his friends were displeased at some one who was boring them with a long and improbable tale, designed to prove that through grief the hair of a person could turn gray in a single night, when a waggish rogue began to set forth the details of the grief of a merchant who on his return home from India encountered a heavy storm and was obliged to throw all his possessions overboard, adding that he was so much grieved at his loss that in the same night his wig turned gray. We are sure that every one present laughed, but did they laugh because their expectation ended with a sudden disappoint-

ment, and the argument vanished into nothing? Not at all. They laughed at the disappointment of the first speaker who was convinced of meeting an ally when actually he was duped by an adversary in ambush.

Jean Paul Richter treats the ridiculous with much grace in his *Vorschule der Aesthetik*; he calls humor the inversion of the sublime and tries to explain the former from the latter. The sublime is a perfect teleological adaptation; the comical, however, is its contrary, it is *Zweckwidrigkeit*. His theory is scarcely tenable, and we enjoy more his examples than his argument. Solger, following Kant and Richter, contrasts the comical with the sublime, and Sulzer defines the ridiculous as an absurdity (*Ungereimtheit*) or a deformity (*Missverhältniss*), which appears to be a mere repetition of the Aristotelian theory.

Floegel has done much valuable work on the subject but has not advanced an original theory.

Vischer treats the comical in its connexion with the beautiful. He defines the beautiful as the sense-appearance of the idea, *das sinnliche Scheinen der Idee*. All pure types, as ideas realised in their perfection, are beautiful, but such types, as the monkey, representing transitions, or the porcupine, being an animal which reminds one of the thorns in the world of plants, are ugly; they are impure types; they are not realisations of a pure idea but contain contradictory elements. Thus the comical is, according to Vischer, not only lower than the sublime, but it is also (and here Vischer is mistaken) morally indifferent. He says:¹

"Tragical irony differs specifically from the typically comical, and we can use the former as a transition to the latter. For out of the negation of the former proceeds a new affirmation; and above the downfall of human sublimity rises the higher sublimity of the cosmic soul,—the *Weltgeist*. The comical, however, in its disappearance into nothing does not propose to affirm some higher sublimity; for the comical has no intention whatever, because it does not lead to any positive result. Hence it is not possible that in a tragedy the comical characters can have anything to say at the conclusion of the drama."

¹ Ueber das Erhabene und Komische, ein Beitrag zur Philosophie des Schönen, p. 156.

We need not refute Vischer's proposition, for it is obviously wrong. Vischer defines the comical as the sublime made plainly perceptible,—*ein deutlich gemachtes Erhabenes*,—for, he adds, the plain appearance of all sensual details annihilates the semblance of infinitude (*Schein des Unendlichen*).

Mr. St. Schütze of Weimar has devoted a book of 274 pages to an explanation of the comical. He insists on its reality in the world. The comical, he says, is not merely a subjective product of the comical poet. "Its existence is as actual as the existence of the tragical; and man cannot escape either." (Page 20.) Schütze regards the funny as a result of man's limitations. Man believes himself to be free but finds by experience that he is a plaything of nature. The comical reminds man of his dependence upon physical conditions and points out by a humorous derision his relation to a higher state of freedom. The materiality of the world is the objective cause of the ridiculous, for materiality and spirituality form a contrast which manifests itself as an incomplete realisation of the ideal. Wit discovers similarities and subsumes discrepant things under the same category. (Page 144.) Satirical is that which castigates vices. (Page 236.) A joke is different from witty remarks in so far as it rests upon a figment; it either distorts the truth or is a pure invention. (Page 150.) A jolly temper finds expression in general merriment which in humor rises to a moral and intellectual height, for humor indicates a self-possession and joyful independence which is difficult to attain. (Page 161.)

Almost all modern æstheticians agree that the ridiculous is something awry or out of place, an incongruity of some kind due to a comparison of heterogeneous things.

Schopenhauer does not consider it worth while to refute the theories of Jean Paul Richter and others, but, as I understand him, his own explanation is not essentially different. He asserts that "Laughing arises from a suddenly conceived incongruence between some real object and its idea, and that it is nothing but the expression of this incongruence." And in another place he states the same theory in other words: "The origin of the ridiculous is

the paradoxical and therefore unexpected subsumption of an object under an entirely heterogeneous idea."

An example of Schopenhauer's is as follows: "A king of France travelling through Gascony laughs at a man of that province who in severe winter was lightly dressed, and asking him if he did not feel chilly, the poor fellow answered: "If your Majesty were dressed like me, you would feel intolerably warm." "Well," the king asked, "and what are you dressed in?" "In my whole wardrobe," was the reply. We do not laugh, as Schopenhauer thinks, at the incongruity of a king's wardrobe and that of the poor wretch, but simply at the king's being rebuked, which is done in a harmless way, without hurting his feelings, so amiably and gracefully that even the king could not help laughing, and openly acknowledging the peasant's petty triumph.

Schopenhauer tells another anecdote to illustrate his theory: "Some one says he likes to take his walks alone. 'So do I,' another person answers, 'let us walk together.'" Schopenhauer's explanation about incongruity does not hit the point; we laugh simply at the undaunted impudence of the intruder and perhaps also of the chagrin of him who tries in vain to escape. Suppose the lonely walker is just bent on avoiding for some reason or another the man who confronts him, and the latter, glad to meet him, is bound to speak to him, willy-nilly. The former will probably not laugh, while our mirth solely depends upon our sympathies with either party! We will laugh if we wish the intruder success.

Here is another instance: Soldiers on duty in a guard house have some one arrested and allow him to join in their game of cards. However, as he cheats, they kick him out, entirely forgetting that he is a prisoner. Do we laugh at the incongruity of the treatment of arrested people and at the general doctrine that rascals must be kicked out? No, we simply laugh at the stupidity of the soldiers who, in their zeal to punish a rascal, allow their prisoner to escape.

Schopenhauer's position is in one respect peculiar. While other æstheticians declare that we laugh at the deformity, ugliness, or insufficiency of the reality as it is in comparison with what it

ought to be, he contends that we laugh because the idea does not cover reality. We enjoy, he says, the victory of intuitive cognition in worsting abstract thought. This is a remark not of Schopenhauer the idealist, but of Schopenhauer the pessimist. The idealist ought to hail the superiority of the idea; but here Schopenhauer sneers at the imperfection of man's highest and best. Schopenhauer's theory is highly improbable. Is there any one who laughs at the insufficiency of abstract thought? Abstract thought has in most cases nothing whatever to do with laughing. In fact, the baby that is incapable of abstract thinking, laughs as heartily as grown up people.

The best explanation of laughing appears to have been offered by Dr. Karl Gustav Carus of Dresden, who regards laughing as the expression of life intensified, and weeping with its groans and moans as a depression of the vitality of the organism. In his opinion the reiteration of the laugh is due to an increase of breathing, while the sighs of the afflicted indicate a retardation of the life-process.

Darwin in his very instructive essay on laughter¹ explains it to be "primarily the expression of mere joy or happiness," and expatiates on its physical mechanism, on the construction of the zygomatic and other muscles, etc. He anatomises the physiology of laughing, adding: "but why the sounds which man utters when he is pleased have the peculiar reiterated character of laughter we do not know."

On the subject of tickling and the physiology of laughing, Darwin ingeniously remarks, "The imagination is sometimes said to be tickled by a ludicrous idea; and this so-called tickling of the mind is curiously analogous with that of the body [*loc. cit.*, page 201]. . . . It seems that the precise point [in tickling] to be touched must not be known. So with the mind, something unexpected—a novel or incongruous idea which breaks through an habitual train of thought—appears to be a strong element in the ludicrous." Yet in spite of this similarity of laughing to reflex motions, he maintains

¹ Chap. 8 in *The Expr. of the Emot.* etc.

that there are different causes which call forth the simple childish laughter and that of adult persons, and he adds, laughter from a ludicrous idea, though involuntary, cannot be called strictly a reflex action [page 201] in man and animals.

Also Mr. Herbert Spencer has ventured an explanation of laughing in his *Physiology of Laughter*,¹ where he remarks, "A large amount of nervous energy instead of being allowed to expend itself in producing an equivalent amount of the new thoughts and emotion which were nascent, is suddenly checked in its flow. . . . The excess must discharge itself in some other direction and there results an efflux through the motor nerves to various classes of the muscles producing the half-convulsive actions we term laughter."

Laughing is perhaps a simpler process than we think, and our philosophers in seeking an explanation go too far. Kant ought to have found it, when he discovered the key to the universe in the *a priori* which is rooted in our subjective disposition. Why did he not think of his idealism when inquiring into the nature of the ridiculous? All æstheticians from Aristotle down to the present time have attempted to explain the ridiculous from the object which elicits ridicule and excites merriment. It behooved a Kant to turn the tables, as he did in other respects and as it was the tendency of his philosophy. Since he himself forgot his own theory let us try to explain the ridiculous not objectively from the thing laughed at, but subjectively from our laughing. Let us, accordingly, not ask, what we laugh at, but why we laugh; and what we mean to express by our laughing.

Schopenhauer says that the mental instigation of laughter must be explained from a function of our brain, which when suddenly grasping the incongruence of an intuitively perceived object with an abstract idea, simultaneously affects the medulla oblongata or some other organ from which this queer reflex motion proceeds, shaking at the same time so many different parts of the body. This is an explanation based on a vague hypothesis and attempts to prove what is not true, viz., that laughing starts from the

¹ Essays, 2nd Series, 1863, p. 114.

seat of abstract thought, while actually it is the expression of a sentiment which like other sentiments affects the lungs and the heart. Laughter is the expression of an exhilaration and should be contrasted, not so much with weeping, as with moaning. Weeping is only one form of moaning. Both laughing and moaning are "affectives" that interfere with breathing. Laughing consists in quickly repeated ejaculations of a triumphal shouting, while moaning is a suppressed but continued sigh, the expression of pain. Moaning, as Karl Gustav Carus rightly remarks, affects the lungs by retarding our breathing while laughing accelerates breathing and thus preoccupies our lungs, not leaving them sufficient time to perform their function properly. It is indirectly through the disturbance of the function of the lungs that laughter shakes the diaphragm.

Laughing is not a matter of intellect but of character. It depends more on our disposition than our thoughts; and as we sometimes betray our feelings in spite of ourselves, so our laugh may frequently carry us away despite our trying to master and suppress it.

But what is the significance of the reiterated shouting which we experience in laughter? The answer seems simple enough. Can it be anything else than a shout of triumph, the loud announcement of a victory, and an expression of joy at a success of some kind?

Imagine we ejaculate a single laugh for some reason or other, say because we have succeeded in something by a sudden stroke, be it by words or by a deed outwitting an enemy of ours. "Ha!" we exclaim, raising our voice to an unusual pitch. The aspiration of our voice is so much stronger than in the common pronunciation of *H* as to set the full compass of our lungs in motion down to the diaphragm, which being connected with the lungs is thus mechanically raised. If this *Ha!* be repeated several times, it forms a volley of ejaculations by which the whole breast begins to shake; and such a phenomenon is a regular laughter, which is nothing but the abbreviation of a triumphal shout. Translated into common parlance it means: "Hurrah, I have got the best of you and you are worsted."

We laugh only at petty triumph. We never laugh when gain-

ing a great victory, as on a battle-field; in such a case we set up a regular shout of triumph. But suppose it be a trivial affair of common everyday life, it is but natural that the expression thereof should be diminished to a miniature shouting.

If the cause of laughter were, as our philosophers say, a painless faultiness or incongruity, why do we neglect to hail with laughter the innumerable harmless discrepancies in the world? If a transformation of intense expectation into nothing were in itself comical, why are not the losses of fortune, or if that be too painful, at least the losses in a game of cards, funny? If laughing were a discharge of checked energy in another direction, as Mr. Spencer has it, we ought to say that a boiler laughs when its steam is let off. We think it very improper to laugh at institutions or persons which we do not like to expose to a harmless defeat; but if the traditional explications were admissible, there would be no cause whatever for being offended at any laughter, nor could we explain its being prohibited in serious and sacred matters. The reason is that laughter expresses an exultation which must appear improper whenever we are in the presence of what is sublime and holy.

Our explanation of laughing, then, certainly agrees with the popular idea, according to which the word is used to express any kind of triumph. The proverb says: "He who laughs last laughs best;" which does not mean, he laughs best who gives vent in reflex motions to the last impression of an incongruity between reality and an idea, or experiences a contrast, or detects some painless deformity; but it states simply the fact, that he enjoys the best triumph who is victorious in the end. To laugh means to triumph. We may distinguish different kinds of laughter according to the sound. The laughter in *e*, "Hee-hee!", is the hiss and sneer of a trickishly gained victory; the laughter in *y*, "Hey-hey!", expresses contempt at a worsted wretch who is now at our mercy; the laugh in *oh*, "Hohoh!" is a scoff of self-exaltation, as if to say, Is it possible that you could be so stupid; in *oo* it marks disgust. The object of our laughter is pooh-poohed by a "Hoo, hoo, hoo!" which sounds like a protest that we won't have anything to do with the matter in question. The clearest and purest vowel, which is *ah*,

is characteristic of the gallant victor, who does not intend to sneer or to scoff at his adversary, but simply enjoys a pure-hearted triumph. All kinds of laughter, however, equally participate in the initial consonant *h*; which denotes spirited pride and mirth, symbolising the exulting breath of a swelling bosom and being in reality the attestation of a self-possessed mind, a victor and conqueror.

Let us now see whether this explanation of laughing can serve as a theory that will account for the ridiculous in its various forms. We trust it will. We do not laugh merely at witticisms, puns, and jokes. If two persons are running a race, he who outruns the other will laugh at his defeated rival. Why? Because a laugh is the expression of a trivial triumph. When a child plays hide and seek with its nurse, the child laughs as soon as it finds her; and who would in that case think that the child laughs because he sees anything incongruent, or hears any witty remarks that express a contrast, or because he discovers the combination of heterogeneous objects, or meets with a faulty and ugly thing. The child simply laughs to express his feeling of triumph. A child will laugh at anything, if he is in good spirits, just as a dog will bark and a horse neigh when in good health on their start for an outing. It is an expression of the joy of life and a consciousness of vigor which is capable of coping with any anticipated difficulty. A placard in a show contained the announcement that a rose-colored horse was to be seen within. People entered at the front and were dismissed through a rear door. The man who showed this wonder of nature led the public to a white horse garlanded with wreaths of white roses. He outwitted the public who forgot that there were roses of different colors. When we laugh at the fraud, we applaud the success of the trickster.

Yet we must bear in mind that a petty victory which we hail with shouting is always sudden. There must be one moment in which all our exultant joy appears concentrated. Victorious soldiers will shout the louder, the more significant the moment is, and they are the more clamorous in the announcement of their victory, the more unexpected it is. It is exactly the same with laughter. Shakespeare rightly remarks, "Brevity is the soul of wit,"

for indeed, the finale of a joke especially, its aim, must as much as possible be concealed; it must come as a surprise, as a sort of ambush, the appearance of which is at once recognised as decisive. If the enemy is eventually surrounded and gradually cut off from all hope, as was Napoleon III. at Sedan, wherever there is not one decisive blow, but a piecemeal victory, there is as little occasion for a triumphal shout as there is in an analogous case of word-battles for laughter. If in a taunt or in any witticism the point has been betrayed too soon, or if it be philosophically explained and analysed before it is fully told, there will be no response to the best joke.

Laughter is the expression of a sentiment, and in this sense its origin is of a purely subjective nature; but for that reason it is not void of objective significance. The objective conditions that elicit a laugh are any such situation which bodes either the victory or defeat of some one—perhaps of ourselves. An absurdity, or an incongruity, or the contrast of the real and ideal are never in themselves ridiculous; they become ridiculous only if they are somehow instrumental in defeating somebody, in worsting an adversary, or in conquering his cause. Nothing is in itself ridiculous, but anything will become so as soon as it serves to secure a harmless triumph.

Jonathan Swift is perhaps the most witty author in English literature. But the humor of his satires could not always be explained on the current theories. There lived in Swift's time an erratic man whose name was John Partridge, an astrologer, who in his annual almanacs never failed to make all kinds of bold predictions. Swift proposed to trip him and began in his turn also to publish prophecies in which he boldly declared that Mr. Partridge would die on a certain day in the next following March. When the appointed day came, Mr. Swift solemnly announced the death of Mr. Partridge and asserted that it had taken place in accordance with the prophecy. The poor almanac-maker protested that he was still alive; but his assertion was met by his witty adversary with a solemn assurance that Mr. Partridge was mistaken, that he was actually dead, or at least ought to be dead. There is no incongruity in the joke. It is merely an act of pillorying a hopeless

ignoramus. Is it possible that we laugh at the incongruity of the dead and yet living astrologer? Or is there any conflict between the ideal and the real? Kant's explanation of a tense expectation which is resolved into nothing will scarcely suffice. Neither is there any amount of energy checked and suddenly discharged in our laughter, as Mr. Spencer would make us believe. There is simply a man over-trumped, not by subtle argument, but by blunt mockery. The more serious Mr. Partridge was in his replies, the more humorous the situation grew.

A dilemma is in itself by no means ridiculous, but if used for worsting an adversary it may become funny according to conditions. We may mention, e. g., that famous juridical instance in which a law student at Athens promised to pay his teacher when he would win his first lawsuit. However, having finished his course, he did not accept a case until his professor sued him. The professor now felt sure of obtaining his fee, for his pupil would have to pay in either case: if he lost his suit, the court would sentence him to pay, and if he won it, the student had won his first law suit. But the young man declared that, on the contrary, he need not pay at all; for either he won the case, in which event the court had decided in his favor; or he lost the case, and in that event he was under no obligation to pay on account of not having won his first law suit. This dilemma and counter-dilemma is not in itself laughable, but it contains conditions which may be utilised for a joke. Every joke must have a point; it must be directed against some-one or something; otherwise there is nothing at which we may laugh. Thus the dilemma becomes comical in discussions where it is a good and effective weapon.

Christ made frequent use of dilemmas in his controversies with the Scribes and the Pharisees. However, most people read the Bible too prayerfully to comprehend it, and fail to see the humor of Jesus when he defeats the learned dignitaries of the synagogue.

St. Luke says: "And it came to pass on one of the days as he was teaching the people in the temple, and preaching the Gospel, there came upon him the chief priests and the scribes with the elders; and they spoke saying unto him: By what authority doest

thou these things?" No doubt the priests intended to stop his preaching on the plea that he had no authority, and if Jesus had claimed to have authority from God, they would simply have said: "We do not believe it, and as long as you cannot convince us, you cannot be allowed to teach in the temple." But Christ saw the snare and turned the two horns of a dilemma against them. He said: "I also will ask you a question, tell me: The baptism of John, was it from heaven or from men?" And they reasoned with themselves, saying: If we shall say from heaven, he will say why did ye not believe him? But if we say from men, all the people will stone us, for they were persuaded that John was a prophet. And they answered that they did not know, whence it was. And Jesus said unto them: "Neither tell I you by what authority I do these things." When the Pharisees, unable to answer, confess that they do not know, they could no doubt see smiles on the faces of the disciples and Jesus, and perhaps they met with sneers from the multitude.

Socrates used to defeat his enemies by following them on their own ground and leading them astray, carefully hiding the ambush which he prepared for them. At last they see themselves ousted from their position and entangled in their own inconsistency. This is called irony or simulation.

Another kind of *reductio ad absurdum*, not so refined, to be sure, but more drastic, is the method of exaggeration. For instance, some one boasts, in company, of his feats in swimming. He says, "I swam once across the Bosphorus." His neighbor wants to show his incredulity and tries to outdo him. So he says: "That is nothing! I heard of some one who swam across the Channel." He might have triumphed had not the bold swimmer been ready to anticipate the blow by accepting the statement and adding pathetically: "Shake hands, dear sir, it was I who performed that deed!" In the domain of fun truth does not decide, and if the wit is applauded it is not because we believe his words but because we admire the quickness of his repartee.

Lies invented as a persiflage of the braggart, form quite a class of comical literature of their own. Such are the stories of Münchhausen, who saves his life when almost drowning in a marsh, by

pulling himself out by his own queue. Lies must be very good in order to be enjoyable. If there is no method in the madness of the story which would render it at least verbally possible, it will fall flat, and the imitator of Münchhausen will be hooted at. To castigate one who with poorly-invented stories had bored a circle of friends, some one began a tale of the Wild West. Having reported the exciting details of a fight with Indians, he describes how at last three men pursued him, but they were separated by considerable distances, which gave him a chance for escape. The first Indian overtook him, but he slew him; then came the second Indian, and he slew him also. And now the third one approached. Here the story-teller goes into details making his hearer impatient for the final outcome until he is interrupted with the question: "And you slew him too?" Then he replies gravely: "No, he slew me."

There is a way to catch unwary listeners by telling them long tales and at the height of their suspense reporting some impossibility, when he who believes becomes the general laughing stock. For instance a gentleman tells of some friend of his, an officer in the last war, who received a pension for the loss of one arm. When the pensioner learned that his pension would be doubled if he had lost both arms, he drew his sword and cut off his other arm. If a joke of this kind is involuntary it is called an Irish bull.

It is not necessary that the worsted party should be the dupe of somebody else; he may be entrapped in his own snares or by awkward circumstances. This is called a comical situation. Examples are plenty, and any good comedy will afford instances of it. There are all kinds of awkward positions into which persons are pushed either by their own folly and vice or by the malignity of others. Such is the case of Malvolio when falling in love with his mistress Olivia through the intrigues of her maid; and such, in the animal fable, are the misfortunes of the bear, the cat, and the wolf, who become the dupes of "Reynard the Fox." In Goldsmith's comedy *She Stoops to Conquer* Mrs. Hardcastle is by the tricks of her spoiled son Tony almost frightened to death in her own garden while she believes herself to be in Crack-skull Common, the most notorious spot in all the country. Sometimes people come

into a comical situation by ill-luck, and we laugh at their predicament; but, of course, we must always feel sure of a happy exit; the conflict must never grow tragical.

An inexhaustible source of hilarity is naïveté. There are daily new adventures that happen to both small and adult children. Such innocence at home and abroad may be found everywhere. Mark Twain is the classical author in this line of fun. Other remarkable productions of this type are in French *Tartarin* and in German *Die Familie Buchholz*.

There are persons who assume the mask of naïveté in order to make others laugh. If they wish to be sure of success, they must never laugh themselves but must play their part as long as they intend to keep their hearers in good humor. As soon as they laugh themselves, the spell is broken. The following story may serve as an instance of this kind of fun in which naïveté is assumed, but not genuine. Around large cities in Europe the hunting is annually leased by auction to the highest bidder. Thus it is usually in the hands of rich philistines, people who are sometimes very bad hunters. One of them once said to his fellow-hunter: "We pay for hunting one thousand dollars and shoot scarcely fifty hares. So every hare which we shoot costs at least fifty dollars." "So much?" said his friend. "Then I am glad we don't shoot more."

Men like to be merry, and so they laugh and find ridiculous subjects everywhere. Sometimes the worse their own situation is, the more they enjoy a laugh to balance their sorrows. If they are knocked down in life by the buffets of fate or by some enemy, they may, if they have but the humor to do so, fancy their victor to be in some ridiculous position, and at the mere play of imagination they will momentarily cure their ailments as if they were in no trouble whatever. It is a matter of fact that during the first French Revolution people in the face of the Guillotine jested at their keepers, tyrants, and judges. And the great Cervantes wrote his *Don Quixote* when imprisoned in a sponging-house. We might almost think the greater the danger, the better the fun. Soldiers in war are usually full of jokes, and even the conquered party indulge in witticisms, thus enjoying the harmless laugh of at least an imaginary

triumph. The world affords enough material for ridicule, if we but detect it; and where there is none, we are able to create it from a mere nothing. The mere idea of a reversed world suffices to excite merry laughter.

As beauty draws more than oxen, so wit is a more effective weapon than the sword. When in 1794 the question of the emblems and devices of national coins was before the House of Representatives, Matthew Lyon, a congressman from the South, stoutly opposed the eagle as being a monarchical bird. The king of birds, he thought, being an emblem of royalty, could not be a suitable representation of a country whose institutions were founded in opposition to kings. In reply Judge Thatcher proposed to have a goose as coat of arms for the United States; for the goose, he said, is a most humble and republican bird, not a beast of prey but a useful creature and would in other respects also prove advantageous, in as much as the goslings would be convenient emblems for the dimes. The laughter which followed at Mr. Lyon's expense was more than he could bear. He construed this good-humored irony into an insult, and sent Judge Thatcher a written challenge. The bearer delivered it to Mr. Thatcher, who read it and, handing it back, observed that he would not accept it. "What?" said the visitor, "will you be branded as a coward?" "Yes, sir, if you please. I always was a coward, and Mr. Lyon knew it, or he never would have challenged me." The new joke could not be resisted even by the angry party, and occasioned much mirth in congressional circles. The former cordial intercourse between both gentlemen was soon restored, for Mr. Lyon wisely concluded there was no use trying to fight an adversary who fired nothing but jokes.¹

A witty remark once saved the life of a clergyman in the French Revolution. When surrounded by a mob shouting "*à la lanterne!*" he calmly asked: "Do you think it will give you more light if you hang me to the lantern-post?" The mob laughed and let him go.

Witticisms need not necessarily hit a certain person; they may

¹ *Illustrated History of the U. S. Mint.* Philadelphia.

be aimed at a class of people or even quite abstractly denounce folly in general. Ancient historians inform us that Pythagoras, when he had discovered the theorem which up to this day bears his name, offered the sacrifice of a hecatomb to the gods. Archaeologists, to be sure, doubt whether hecatomb means every hundredth ox or literally a hundred oxen. The latter, certainly, would have meant a great slaughter among the cattle. "Since that day," Heine says, "all oxen are afraid lest a genius discover a new theory; and hence we may well understand their interest in thwarting all such attempts. Therefore, when you have new ideas, beware of oxen!" The joke on the hecatomb of Pythagoras is not original with Heine; for we find a similar remark in the lectures of Hegel who expresses the same idea more concisely about as follows (I quote from memory): "The days of Pythagoras were a great time, when the new ideas of a genius were celebrated with hecatombs for the best of mankind—at the cost of the oxen."¹ Since Heine attended Hegel's lectures, it is very probable that he is indebted for the idea to the philosopher of the Absolute.

Having characterised in outline the origin and meaning of the human laugh and having found that the explanations, current among our leading philosophers from Aristotle down to Mr. Spencer, have overshot the mark and sought the solution of the problem which lies quite near, at too great a distance, we find ourselves actually at the beginning only of our investigation. Having found that laughing is an abbreviated but reiterated shout of triumph, we may now go over the whole field and revise the various detail problems connected with our subject. We may, for instance, inquire what, if anything, corresponds in animal life to the human laugh. Although it is quite true that laughing is a human prerogative, we may find that there are some expressions of mirth noticeable in the life of some higher animals which can be interpreted as an incipient laugh.

There are many additional problems connected with our sub-

¹ "Es war eine grosse Zeit [die des Pythagoras], als die neuen Gedanken des Genius mit Hekatomben gefeiert wurden zum Frommen der Menschheit,—auf Kosten der Menschheit."

ject. We may ask, Is it possible to introduce the ridiculous into the realm of music, that is to say: Could a composer make people laugh with purely musical means? This would exclude comical songs as well as musical travesties; for the fun of the former consists in the words and is only heightened by an appropriate melody, while the latter are distortions of a melody which is associated with certain sentiments or ideas. The humor of a musical travesty is the product of its associations and does not lie in the music itself.

Further, the methods of attaining a triumph are different. We must therefore expect to have different conditions of that which will induce us to laugh. We should have to trace the differences between the ridiculous and the foolish, the comical and the funny, the satirical and the sarcastic, the ludicrous and the jocular, the odd and the grotesque, the droll and the baroque, the outlandish and the burlesque, mockery and scoff, irony and humor. We abstain from entering into these questions, because a discussion of them would take much space and time, and would, after all, throw very little light on the theory of laughing in general. We will, in fine, mention only one problem which has a certain moral significance: "Can any one laugh at himself?" Jean Paul Richter thinks not; at least not while we are in a ludicrous situation. He says: "No one can laugh at himself, unless it be an hour afterwards," viz., when we have to some degree become some one else. Richter's theory would imply that we can never take a higher view of our own self; it would in fact exclude the possibility of what is called self-criticism and even self-control. It is true that there are many people who are unable to practise self-control and self-criticism. They are naturally unable to laugh at themselves. The ability of seeing the ridiculous side of oneself is a moral quality, it is a great thing in life, for the acquisition of which it would be worth while to pray daily the words of Burns:

"O wad some power the giftie gie us
To see oursel's as ithers see us."

The people who are unable to laugh at themselves, can never stand being laughed at by others. And why? Because they cannot

rise above themselves; they cannot judge of themselves as they would judge of others, impartially and justly. A man who quietly suffers himself to be the butt of a harmless joke and even joins the laughing party not only proves that he is good-natured, but also that he is free from vanity. Vain persons and egotists will never learn to stand a joke; they are irritable because they are worshippers of self and will not allow their deity to be triumphed over. To them their own person with all its faults is as sacred as are matters of religion to a devotee. Goethe therefore regarded the ability of good-naturedly allowing oneself to be laughed at as a sign of belonging to the aristocracy of head and heart. He says: *Wer sich nicht selbst zum Besten haben kann,*

Gehört mir wahrlich niemals zu den Besten."¹

EDITOR.

¹ The play on the word *Besten* cannot be translated. *Jemanden zum Besten haben* means "to make a joke at the expense of some one." *Sich selbst zum Besten haben* means "to suffer oneself to be laughed at by others." The comparative and superlative of "good" is, in the Teutonic languages, derived from a root *Bat* or *Bad*, from which the English *bad* and the German *Buße* (penalty) are derived. He who is "held to the best" is made to pay.

The people who are unable to laugh at themselves, can never stand being laughed at by others. And why? Because they cannot

ON THE PHILOSOPHICAL BASIS OF CHRISTIANITY IN ITS RELATION TO BUDDHISM.

A LETTER FROM PROF. RUDOLF EUCKEN OF JENA.

THE MOST IMPORTANT DIFFERENCE between Buddhism and Christianity lies in the conception of the soul. While the Buddhist philosophy denies the existence of a separate individual self (which, of course, must be understood as implying a denial, not of man's personality, but only of the Brahmanical theory of a separate self or ego-soul, called the *âtman*), Christian philosophers have mostly insisted on the doctrine of a self-soul. Nevertheless, there may be, not only in ethics but also in their psychological theories, more agreement between Buddhism and Christianity than appears at first sight, for it is difficult to say what we must understand by self. Apparently the word personality is used by Christian thinkers in a very loose sense, for according to the doctrine of the trinity it is not incompatible to speak of three personalities in one. This implies that the fathers of the Christian Church did not think of a person as denoting an organised being of an individual type with a separate ego-consciousness. On the other hand, there are scattered in Christian literature a great number of passages showing that the Buddhist soul-conception is by no means foreign to the leaders of Christian thought. Above all, the Apostle Paul emphasises very strongly the idea that his ego has disappeared. He says: "I am crucified with Christ, yet not I but Christ liveth in me." In the same sense St. Paul speaks of single individuals, in contrast to the evolution of the whole according to God's dis-

pensation, as being in themselves "not anything." He says (1 Cor. 3, 5):

"Who, then, is Paul and who is Apollos? . . . I have planted, Apollos watered; but God gave the increase. So, then, *neither is he that planteth any thing, neither he that watereth*; but God that giveth the increase. Now, he that planteth and he that watereth are one: and every man shall receive his own reward according to his own labour. For we are labourers together with God: ye are God's husbandry, ye are God's building."

Here apparently every one is supposed to have no separate existence whatever, except in and through God. It is God who planteth and God who watereth. But every one is nonetheless quite distinct and definite, for "every man shall receive his own reward according to his own labor."

The coincidence of Buddhism with Christianity is remarkable in this passage; for, as the Buddhist scriptures speak of the fruits of the karma, so Paul speaks of the reward of one's labors.

The Buddhist idea that salvation consists mainly in dropping our own self, in becoming nothing, in self-annihilation for the sake of becoming Buddha, viz., divinity incarnate, can be found in many Christian writings. The highest religious aspirations are not the result of an anxiety for the salvation of one's soul but a yearning for a union with God. Thus, Ignatius Loyola says in one of his hymns:

"Non ut salvas me
Sed quia amo Te."

[Not that thou shouldst save me,
But because I love thee.]

Master Tauler of Strassburg uses the words *entwerden*, which means to become nothing, and *vergottung*, i. e., becoming one with God. Among the theologians of the present century passages that breathe the same spirit can be found in Tholuck; otherwise modern theology is beginning to move more and more in the ruts of stereotyped pious phrases, and fights shy of anything that seems to indicate a philosophical conception of the soul-problem.

In consideration of the deep interest attaching to the problem of the soul, the editor of *The Monist* wrote to Prof. Rudolf Eucken

of Jena, who is perhaps the highest living authority on religious philosophy and philosophical terminology, requesting him to write an article on the subject. Professor Eucken replied as follows:

"The problem with which you are engaged is vividly echoed by me, and I shall take special pleasure in serving you according to the best of my ability by quotations from old Christian and mediæval literature. To-day I send you at once a few extracts from my own collections. Later on I shall supplement them with passages of the same tendency, but I fear I shall not be able to write an article on the subject as you suggest. The more shall I be glad if you can make use of the quotations which I herewith furnish.

"It seems to me that we must omit on this occasion the innumerable sentences which are pronounced against the punyness of the ego and selfish pleasures. We must distinguish between the religious sentiment concerning the insignificance of the individual as confronted with the highest power and such passages as express the conviction of a deeper speculation. The latter idea is found among Christian authors first in the writings of the Alexandrians Clemence and Origen. Accepting Plato's view that God is the highest good, these writers require the true Christian to give himself up entirely as a *γνωστικός*, a gnostic, to this conception, and thus he is deified (*θεοῦμενος*, *vergottet*).
 "A deeper foundation is given to this view in the Neo-Platonic doctrine that all reality is an emanation of God, and that all genuine aspiration consists in a return to God, who is the essence of the world. This conception was received by Gregory of Nyssa and even in a higher degree by Dionysius, the pseudo-Areopagite.
 "In the Western Church, St. Augustine was first touched by this idea, but through emphasising the idea of love and also through his mysticism he gave a strong impetus toward the emotional, wherein the Occidental Church followed him.
 "The mystical tendency is most strongly developed in Scotus Erigena, in which form, however, it was rejected by the Church. From the twelfth century on a new ecclesiastical mysticism de-

veloped, whose climax unquestionably was reached in Master Eckhart. But he, too, at last came in conflict with the Church. It is probable that in his writings will be found most to suit the present purpose. Tauler and his followers are not quite so bold and not quite so speculative as Eckhart. Nevertheless, there are quite a number of interesting sayings in their writings. Luther, however, was strongly attracted by that tendency only during the years of his growth. In later years he was frightened away from it by its pantheistic implications. Upon the whole, the Catholic Church has less prejudice against these views than orthodox Protestantism. Wherever there was found among the Protestants a person inclined toward mysticism, as for instance Jacob Böhme, he was always branded as a heretic and persecuted.

The passages which I send you are not quite limited to the problem of the ego. They go beyond it, but they contain much that will be of interest and they certainly are symptoms of an aspiration from a particularistic conception of Christianity toward a general human view. I also add several passages which may serve as instances that the old Christian ethics did not so lightly dispose of the misery of the world as our modern Christian theologians do. I quote the passages simply according to their authors, and am convinced that a systematic search in this direction will result in producing passages still more pregnant than I, at a moment's notice, am able to adduce. But I shall keep my eye on this question, and may be able later on to send you a further communication.

As to the word *entwerden*, I have to add that you are decidedly right. I have a passage of Eckhart in mind, which runs as follows: *alles werden endet in ein entwerden*; and my Middle-High-German dictionary defines *entwerden* as: (1) with a dative, 'to escape'; (2) with a genitive, 'to be delivered from.' Also in this direction I hope to find definite passages, and I shall re-read Master Eckhart, not only for the purpose of your problem, but also for my own work in the line of religio-philosophical investigations.

The quotations of Professor Eucken are as follows:

Clement of Alexandria (teaching since 189 A. D., *Strom.* IV., 22, 136):

χρείας τινὸς ἐνεκεν, ἵνα μοι τόδε γένηται καὶ τόδε μὴ γένηται, τῆς ἐπιστήμης ἐρίσθαι τῆς περὶ τὸν θεὸν οὐκ ἴδιον γνωστικοῦ, ἀποχρῆσθαι αἰτία τῆς θεωρίας ἢ γνώσεως αὐτῆς. τολμήσας γὰρ εἰπαίμ' ἂν, οὐ διὰ τὸ σῶζεσθαι βούλεσθαι τὴν γνώσιν αἰρήσεται ὁ δὲ αὐτὴν τὴν θείαν ἐπιστήμην μετεπὼν τὴν γνώσιν.

(It does not behoove a gnostic to pursue a comprehension of God for the sake of some gain, that "this may happen to me," and that "that may not befall me." The knowledge itself suffices him as a cause for study. Indeed, I would boldly declare that he who seeks the gnosis for the sake of the divine comprehension itself, pursues the gnosis not even for the sake of being saved.)

Eusebius (fourth century), the father of church history, describes the characteristics of Christian ethics as follows (*Præparat. evang.*, I., 4):

τὸ πᾶν γένος παιδεῖαν παιδεύεσθαι ἐνθεδὸν καὶ εὐσεβεῖν, φέρειν τε μανθάνειν γενναίως καὶ βᾶδει φρονήματι τὰς τῶν ἐπανισταμένων ὑβρεῖς καὶ μὴ τοῖς ἰσοῖς τοῖς φαυλοῖς ἀμύνεσθαι, θυμοῦ δὲ καὶ ὀργῆς καὶ πάσης ἐμμανοῦς ὀρέξεως κρείττους γενέσθαι· ναὶ μὴν καὶ τῶν ὑπαρχόντων ἀποροῖς καὶ ἐνδεσίαις κοινωνεῖν, πάντα τε ἀνθρώπων ὁμογενὴ δεξιόσθαι καὶ τὸν νενομομένον ἔξιν ὡς ἂν νόμῳ φύσεως οἰκειότατον καὶ ἀδελφὸν γνωρίζειν.

(That the whole human race might receive a divine and pious education, and that it might learn to bear nobly and with a profound mind the wrongs of adversaries, and that it would not defend itself against the bad with their own bad methods, that they should master wrath, and hatred, and all wild passion, that they should also communicate of their affluence to the poor and the needy; that they should esteem all mankind as kin, and should recognise the so-called strangers by a law of nature as a neighbor and a friend.)

Augustinus (354-430) in *De vera religione*, 47, says:

"Verissime atque certissime invictus homo est, qui coheret Deo, non ut ab eo aliquid boni extra mereatur, sed cui nihil aliud quam ipsum hæerere Deo bonum est."

(Truly and most assuredly, that man is invincible who hangs together with God, not for the purpose of earning something good, but to whom there is nothing good but the hanging together with God.)

Augustinus (*Retractationes*):

"Ipsa res quæ nunc Christiana religio nuncupatur, erat apud antiquos nec defuit ab initio generis humani, quousque ipse Christus veniret in carne, unde vera religio, quæ jam erat, cœpit appellari Christiana."

(That which now is called the Christian religion existed among the ancients

and was never absent from the beginning of the human race until Christ himself appeared in the flesh, since when the true religion which already existed began to be called Christianity.)

Augustinus (edition of the Benedictines):

"Quod fit a te ipse facit in te. Nunquam fit a te, quod non ipse facit in te. Sed aliquando facit in te, quod non fit a te; nunquam autem aliquid fit a te, si non facit in te." (V., 227, C.)

(What happens of thee, He Himself (God) works in thee. Never anything happens of thee which He Himself does not work in thee. But sometimes He works in thee that which is not done by thee. Yet never is anything done by thee unless He works it in thee.)

Dionysius Areopagita (fifth century):

τὸ εἶναι πάντων ἐστὶν ἢ ὑπὲρ τὸ εἶναι θεότης. (*De Caestli hierarchia*, 4.)

(The being of all is the divinity above all being.)

ὁ θεὸς ἐρως ὡσπερ τὴς αἰδίου κύκλος. (*De divinis nominibus*, IV, 14.)

(Divine love is like an eternal circle.)

πᾶσα διὰς οὐκ ἀρχή, μόνως δὲ ἐστὶ πάσης διὰδος ἀρχή. (§ 21.)

(Duality is never a principle. A unity is always the principle of every duality.)

αὐτός ἐστι (viz., God) τὸ εἶναι τοῖς οὖσι· καὶ οὐ τὰ ὄντα μόνον, ἀλλὰ καὶ αὐτὸ τὸ εἶναι τῶν ὄντων. (5, § 4.)

(He Himself (viz., God) is the being of all beings, and He is not only the beings but also the being of the beings.)

καὶ γὰρ οὐ τόδε μὲν ἐστὶ (God), τόδε δὲ οὐκ ἐστὶν· οὐδὲ πῇ μὲν ἐστὶ, πῇ δὲ οὐκ ἐστὶν, ἀλλὰ πάντα ἐστὶν, ὥς πάντων αἰτίας. διὰ καὶ πάντα αὐτοῦ καὶ ἅμα κατηγορεῖται, καὶ οὐδὲν ἐστὶ τῶν πάντων. (5, § 8.)

(For indeed, not is He [God] this and that is He not. And not is He in this way and in that way is He not; but He is all as the causer of all. Therefore, all is predicated at the same time of Him, and He is nothing at all.)

Scotus Erigena (ninth century), edition of Migne, *De divisione naturae*:

"Cum ergo audimus, Deum omnia facere, nihil aliud debemus intelligere, quam Deum in omnibus esse, hoc est, essentiam omnium subistere. Ipse enim solus per se vere est, et omne quod vere in his quae sunt dicitur esse, ipse solus est." (I., 318, A.)

(When we are informed that God does everything, we must understand that God is in all things, that is to say, He is the essence of all. He alone, indeed, exists in the truth, and everything which in the things is truly called 'being,' is He Himself alone.)

"Merito ergo amor Deus dicitur, quia omnis amoris causa est et per omnia

diffunditur et in unum colligit omnia, et ad se ipsum ineffabili regressu resolvitur." (519, D.)

(Justly, therefore, is God called love, because He is the cause of all love and is diffused through all things, collects all things into one, and is resolved again in an ineffable regress to himself.)

Finally, "in eo [God] omnia quiescunt, et unum individuum atque immutabile manebunt." (527, B.)

(In God all things will be put to rest and remain one, indivisible, and immutable.)

Scotus Erigena says that God

"non intelligit quid ipse sit." (II., 590.)
(God does not perceive what he is himself.)

"Et creari et creare conspicitur divina natura. Creatur enim a se ipsa in primordialibus causis; ac per hoc se ipsam creat, hoc est, in suis theophaniis incipit apparere, ex occultissimis naturae suae finibus volens emergere, in quibus et sibi ipsi incognita, hoc est, in nullo se cognoscit, quia infinita est, et supernaturalis et superessentialis et super omne, quod potest intelligi et non potest, descendens vero in principiis rerum ac veluti se ipsam creans in aliquo inchoat esse." (III., 689a.)

(The divine nature manifests itself as being created as well as creating. It is created by itself in primordial causes and therefore it creates itself, that is, it begins to appear in its theophanies. Longing to emerge from the most hidden realms of its own nature in which it is unknown to itself, that is, it does not understand itself in nothing, because it is infinite and supernatural and superexistent and above everything which can and cannot be understood, descending indeed down to the principles of the things, and, as it were, creating itself, it begins to exist in something.)

"Qui perfecte vivit, omnino corpus suum et vitam, qua illud administratur, omnesque corporeas sensus non solum spernit, verum etiam quantum potest et corrumpit et destruit." (IV., 753 B.)

(He who leads a perfect life has not only an utter contempt for his body and the life by which the body is sustained, and all corporeal senses, but also destroys and annihilates them as much as he can.)

Master Eckhart (born about 1260, died 1327; see *Deutsche Mystiker*, by Pfeiffer, Vol. II.):

"Und also ist das wort Augustini zu verstehen, das er spricht: was der mensche minnet, das ist der mensche. Minnet er einen stein, er ist ein stein; minnet er einen menschen, er ist ein mensche; minnet er got—nû getar ich niht für baz gesprechen, wan sprêche ich, das er got danne wêre, ir môhtet mich versteinen. Aber ich wêre iuch tû die geschrift." (199, 3.)

(And in this way the word of Augustine must be understood when he says:

"What a man loveth, that he is. If a man loveth a stone, he is a stone. If he loveth a man, he is a man. If he loveth God—now I do not dare to speak further, for if I say that he then is God you might stone me, but I refer you to the Scriptures.)

"Got und ich, wir sin ein mit bekennen" [= erkennen]. (206, 8.)
(God and I, we are one in understanding.)

"Sol diu sêle got erkennen, sô muoz si ouch ir selber vergezzen unde muoz sich selber verlieren; want als si sich selber siht und erkennet, sô siht noch erkennet si got niht. Als si sich durch got verliuret und alliu dinc verlât, sô vindet si sich wider in got." (222, 37.)

(If the soul is to comprehend God, it must forget itself, for if the soul sees and comprehends itself, it neither sees nor comprehends God. If the soul loses itself through God and forsakes all things, it finds itself again through God.)

"Bin ich sêlic, sô sint alliu dinc in mir unde got, unde swâ ich bin, dâ ist got, sô bin ich in got, unde swâ got ist, dâ bin ich." (32, 12.)

(If I am blest, then all things are in me and God also. And wherever I am, there is God. Thus am I in God and wherever God is there I am.)

"Swenne diu sêle dar zuo kumt, daz si sich vereinet mit dem schepfer, sô verliuret si ira namen, wand got hât si in sich gezogen, alsô daz si an ir selber niht enist, als [wie] die sunne daz morgenlieht [Morgenroth] in sich geziuhet, daz ez ze nihte wird." (513, 20.)

(Whenever the soul comes to uniting itself with the Creator it loses its own name, because God has drawn it to himself in such a way that it is nothing in itself, as the sun draws in the morning red, that it becomes annihilated.)

"Ihr sult wizen, das alle unser vollekomenheit und alle unser sêlikeit lît dar an, daz der mensche durchgange und übergange alle geschaffenheit und alle zîtlicheit und allez wesen und gänge in den grunt der gruntlôs ist." (619, 25.)

(Ye should know that all our perfection and all our bliss consists in this that man penetrates and transgresses everything created; everything temporal, everything existent, and enters into the ground which is groundless.)

"Der in allen steten ist dâ heime, der ist gotes wirdic, unt der in allen zîten bilbet eine, dem ist got gegenwürtic, und in deme sint gewigen alle créature, in deme gebirt got sinen einbornen sun." (598, 21.)

(He who is at home in all places, is worthy of God, and to him who in all times remains one, God is always present, and in him to whom all creatures have been silenced, God begets his only begotten son.)

"Daz hoehste, dâ der geist zuo komen mac in disem lîbe, daz ist, daz er eine stête wonunge habe ûzer all in all. Daz er wonen sol ûzer all, daz ist daz er wonen sol in einer abgescheidenheit und in einer blôzen lîdekeit [= Ledigkeit] sin selbes und aller dinge. Daz er aber wonen sol in all, daz ist, daz er wonen sol in einer stêten stîlheit, daz ist: in einer inswebunge [= Entschlafen] in sinem ewigen bilde, dâ aller dinge bilde in einer einvaltekeit lîhtet." (600, 31.)

(The highest to which the spirit can attain in this body is, that he may have

an abiding dwelling outside of all, within all. That he should live outside of all, means that he should live in seclusion and in a pure state of being rid of himself and of all things and that he should live within all means, that he should live in a constant stillness; it means a going to sleep (?) in his eternal image in which all things, the images of all things are illumined in simplicity.)

Eckhart says about those who are born again in the spirit:

"Sie sint lidig [ledig] der dinge unde schouwent den spiegel der wärheit unde sint unwizent dar zuo komen: sie sind uf ertriche, ir wonunge ist aber im himelriche, unde sie sint gesetset in ruowe; sie gânt her für als die kleinen kint." (601, 4.)

(They are rid of the things and behold the mirror of all truth. And they have come to it unknowingly. They are on earth but their dwelling is in heaven. They are placed at rest, but they walk about like little children.)

"Dâ stirbet der geist alsterbende in dem wunder der gotheit, wan er in der einekeit enhât kein underscheit; daz persönliche verliure stnen namen in einekeit." (517, 1.)

(There the spirit dies, dying away in the miracle of Godhood, for in the oneness with God he possesses no discrimination. The personal loses its name in oneness.)

He describes the merchants in the temple as those who demand wages:

"Alle die wîle der mensche ihtes iht suochet in allen stnen werken oder iht begert von allem dem, daz got gegeben mag oder noch geben wil, sô ist er disen konfliuten gelich." (35, 1.)

(So long as man longs for anything in his works or desires anything of that which God has given or not given, he is like unto these merchants who demanded wages in the temple.)

"Ich wil lieber in der helle sin unde daz ich got habe, denne in dem himelriche, und daz ich got niht enhabe." (624, 5.)

(I prefer to be in hell if I only have God, than to be in heaven without having God.)

"Ich spriche wêrlich: al die wîle dâ diniu werc wirkest umbe himelriche oder umbe got oder umbe dîn ewige sêlikeit von âzen zuo, sô ist dir wêrlich unreht." (66, 6.)

(I speak in truth: so long as you do your work for the sake of heaven or for the sake of God, or for the sake of your eternal salvation externally, you are truly on the wrong path.)

"Got wirket sunder warumbe und en hât kein warumbe." (146, 20.)

(God worketh without a wherefore, and he has no wherefors.)

"Swenne si [die Seele] danne gesamenôt [gesammelt] wirt in die oberôsten kraft, sô wirt si vergeistet, und swenne denne der geist haftet an gote mit ganzer

einung des willens, sô wirt er vergotet. Danne allererst sô ist er in der wâren anbetunge." (240, 11.)
 (Whenever the soul will be gathered into the highest force, it will be transfigured, and when thus the spirit clings to God with an entire unity of will, it will be deified. Then only man will be in true worship.)

Noteworthy are the passages 466 ff., on the nobility of the soul (418 ff.), and of the birth of the eternal word in the soul (574, 22). He says:

"Diu hoeheste hœcheit der hoehe diu lit in dem tiefen grunde der dêmûetikeit." (574, 22.)

(The highest highness of the height lies in the deepest abyss of humility.)

"Diu tiefe unde diu hoehe ist einz." (26.)
 (Depth and height are one.)

"Wie sol der mensche sîn, der got schouwen sol? Er sol tût sîn. Unser herre spricht: nieman mac mich gesehen unde leben."—106, 37.
 (How shall that man be who shall behold God? He shall be dead. Our Lord says: "No man may see me and live.")

"Als verre dû niht enbist an dir selben, als verre bistû alliu dinc und ungescheiden von allen dingen, und als verre dû ungescheiden bist von allen dingen, als verre bist dû got und alliu dinc."—163, 8.

(So far as thou art nothing of thine, thou art all things, and unseparated from all things. And as thou art unseparated from all things, thou art God and all things.)

"Got wirt und entwirt."¹ 180, 18.
 (God becomes and is ceasing to be.)

"Niene [nirgend] ist got als eigentlich got als in der sêle. In allen creatûren ist etwaz gotes, aber in der sêle ist got götlich, wan sie ist sîn ruowestat.—230, 36.

(Nowhere God is really God except in the soul. There is something of God in all creatures, but in the soul God is godlike. For, the soul is his dwelling place.)

"Ich sage iu bi der ewigen wârheit, als lange ir willen hânt ze erfüllende den willen gotes und iht begerunge hânt der êwikeit unde gotes, alsô lange sint ir nicht rehte arm; wan daz ist ein arm mensche, der niht enwil noch niht bekennet noch niht begert."—281, 16.

(I declare to you by the eternal truth that so long as you have still a desire to fulfil the will of God, so long as you are anxious for eternity and for God you are not yet truly poor (viz., poor in spirit), for he only is a poor man who wants nothing, knows nothing, and desires nothing.)

"Dû solt alzemâle entsinken dîner dînesheit unde sol dîn dîn in sinem mîn ein

¹By the bye, *entwerden* is very rare in Eckhart.

min werden also genzlich, daz dû mit ime verstandest ewigliche sine ungewordene istikeit [= *essentia*] unde sine ungenanten nihtheit."—319, 18.

(Thou shalt altogether sink away from thine thinehood. And thy thine shall in His mind so entirely become a mine, that thou altogether with Him eternally seizest His uncreated beinghood, and His nameless nothinghood.)

"Wie sol ich in [viz. Gott] denne minnen? Dû solt in minnen als er ist: ein nihhtgot, ein nihhtgeist, ein nihhtpersône, ein nihhtbilde, mër [= vielmehr]: als er ein lûter pûr klâr ein ist, gesundert von aller zweiseite, und in dem einen sîlen wir ewigliche versinken von nihte zuo nihte."—320, 27.

(How shall I love him (viz., God)? Thou shalt love Him as He is, a not God, a not spirit, a not person, a not image; but rather as He is, a true, pure, clear One, separated from all twohood, and in this One we shall eternally disappear from nothing into nothing.)

"Darumbe heizet man die eineikeit nihht, want der geist enkan keine wise vinden, waz si si; mër: daz der geist enpfindet, daz er enthalten wird von eim andern dan daz er selber ist."—319, 20.

(Therefore one calls oneness, nothing, because the spirit can in no wise find what it is. The spirit rather perceives that it is contained in something else which it (the spirit) is itself.)

"Allez unser wesen lit an nihte denne an einem nihhtwerden."—574, 33.

(All our being relies on nothing but on becoming nothing.)

"Sîn [viz., man's] wesen unde sîn ûfenthalt ist, wie er das unbegriffenliche wesen verstande mit einer frien ledigen vernunft als sîn eigen wesen, und darumbe wirt im diu wunderheit des vernichtenden nihhtes unverborgen."—583, 14.

(Man's nature and his task is how he may understand the incomprehensible essence with a very untrammelled reason, as his own essence, and thus only the wonder of the annihilating nothing will be revealed to him.)

"Wâ zwei ein sîllent werden, dâ muoz daz ein sîn wesen verlieren. Also ist: sol got unde diu sêle ein werden, sô muoz diu sêle ir leben und ir wesen verlieren,"—32, 30.

(Wherever two shall become one, there one of them must lose its own nature. Therefore, shall God and the soul become one, then soul must lose its life and its nature.)

"Es enmûhte niemer gesîn, daz ez ûs gebrechen mûhte, ez enwære vor dar inne gewesen in der lûterkeit, in dem swebenden wesenne. Der wîn ist in der reben, und ist nihht darinne und ist doch darinne."—194, 32.

(It could never happen that it (anything) might come out except it has been in it before in the purity of the continuous being; the wine is in the grapes and is not in them, and yet it is in them.)

"Nâchvolgen dem vergoteten menschen Kristô."—643, 19.

(We must follow Christ, the man who has become God.)

"Ein vergoteter¹ mensche."—643, 38.
(A deified man.)

This collection of passages communicated by Professor Eucken might, as he says himself, be considerably increased, but they are sufficiently characteristic. We limit further quotations to a few passages which F. Max Müller introduced in his famous novelette *German Love*. Angelus Silesius says:

"Wir beten: 'Es gescheh', mein Herr und Gott, dein Wille,'
Und sieh, er hat nicht Will', er ist ein ew'ge Stille."
[We pray: "Thy will, my Lord and God, be done,"
And lo, He has no will! He is an eternal silence.]

"Ruh' ist das höchste Gut, und wäre Gott nicht Ruh',
Ich schliesse vor ihm selber mein' Augen beide zu."
[Rest is the highest good, and were God not rest
Then would I avert my gaze even from Him.]

Another quotation of deep interest is selected from the *Deutsche Theologie*, a Middle High German work written by an unknown author. It reads as follows:

"Und wa die voreinunge geschicht in der wahrheit und wesentlich wirt, da stet vorbaas der inner mensche in der einung unbeweglich und got leet den ussere menschen her und dar bewegt werden von diesem zu dem. Das muss und sol sin und geschehen, dass der usser mensche spricht und es ouch in der wahrheit also ist, 'ich will weder sin noch nit sin, weder leben oder sterben, wissen oder nicht wissen, tun oder lassen, und alles das disem glich ist, sunder alles, das da muss und soll sin und geschehen, da bin ich bereit und gehorsam zu, es si in lidender wise oder in tuender wise.' Und alsoe hat der usser mensch kein warumbe oder gesuch, sunder alleine dem ewigen willen genuk zu sin."

[And when the union (with God) takes place in truth and becomes real, then the inner man stands henceforth immovable in the union, and God permits the outer man to be driven hither and thither, from this to that. It must and shall be and happen that the outer man says—and is so also in truth—"I will neither be nor not be, neither live nor die, neither know nor not know, neither do nor leave undone—and everything which is similar to this, but I am ready and obedient to do everything which must and shall be done, be it passively or actively." And thus has the outer man no question or desire but to satisfy only the Eternal Will.]

¹ *Vergotten* is extremely rare in Eckhart and these passages may for that reason have to be attributed to a later redactor of his writings. I must add that Eckhart's works have not as yet been critically sifted, and the text will probably need emendation and the removal of spurious additions.

It was a natural phase in the development of the Church that its doctrines hardened into dogmas. Nor can the formulation of dogmas be regretted, for if the Church had no dogma, in the sense of clearly formulated doctrine, its mission would be gone. All dogmas are symbols; they express truths which, when stated abstractly, are difficult to comprehend in concrete allegories; and dogmas are not in themselves injurious, they become injurious only when by a misinterpretation of their nature the symbol is literally believed in and all attempts at comprehending its significance is abandoned.

The philosophy that underlies Christianity is deep enough for profound thinkers, but the field remains fallow. Professor Eucken says:

"Upon the whole, the Catholic Church has less prejudice against these views than orthodox Protestantism."

This is true, for Protestant theology as a rule clings more sternly to the letter and discourages speculation, because it endangers the literal belief in the dogma; but the Roman Church, in spite of its greater breadth in this particular line, has not in recent times produced anything remarkable, because their thinkers are allowed a wider range of freedom only in purely theoretical questions which will not endanger papal authority or switch off into the evangelical conception of individual responsibility and independence of judgment in matters of conscience.

Among modern Protestant theologians who endeavored to take a broad view of Christianity we mention the Prelate Karl Gerock, the poet of many beautiful songs. He belonged to the orthodox party of Württemberg where he was a leader and one of the highest ecclesiastical dignitaries. Although known as orthodox, he incurred the displeasure of many of his over-pious brethren who regarded breadth of thought as unchristian, and scientific research as a worldly pursuit. Gerock's reply to these accusations, which stirred him deeply, took the shape of a hymn entitled "I Rue It Not," whose clarion notes sound like a call to arms against all narrowness that clothes itself in the mantle of piety. Since the poem is almost unknown in English-speaking countries, we quote it in

full in an English translation which was made at the writer's special request by Mr. E. F. L. Gauss of Chicago, a personal friend of the late Prelate Gerock.¹

I RUE IT NOT.

¹ Cor., 3, 22, 23.

Much I will rue when at my grave's dark portal
And I look back upon my pilgrimage;
Thoughts, words, and actions as of every mortal
Their accusations 'gainst my soul allege.
When then thine eye, O Judge, is through me flaming,
Not judgment, Lord, but mercy be my lot!
Yet much, my friends, that strictly you're condemning,
—I rue it not.

I rue no sentence that was mildly spoken
Where brother brother weighed upon the scale,
When I did hope where you the staff had broken,
And honey found where others poison hail.
And were my hopes too bold, too mild my sentence:
In Heaven is He who still must judge our lot;
No more I hope than through his grace an entrance,
—I rue it not.

I rue no path on which my spirit entered
In science' service solemnly and deep,
When I on wings of heavenly gifts have ventured
On high, while you have passed your time in sleep.
What though around the light the path was winding,
Not leading back till after hours hot:
Who seeks aright alone aright is finding;
—I rue it not.

I rue no song in friendly circle chanted,
Or quietly enjoyed in nature's dome.
When a poetic dream held me enchanted,
A short and golden dream of spirit's roam.
And though a church-tune I'm not always raising,

¹Mr. Gauss, formerly a Lutheran clergyman, now Assistant Librarian of the Public Library of Chicago, is well known among his personal friends as a rarely gifted translator. The present English version of Gerock's poem "Ich rue es nicht," which is the first translation ever made, preserves the metre of the original and is a faithful production of the poet's sentiments.

Though 't be a song Homer, Shakespeare begot:

In nature's temple, too, all God is praising;

—I rue it not.

I rue no day when I for many an hour

By the great beauty of God's world was charmed,

Fanned in the storm by his almighty power,

And in the sunshine by his favor warmed.

And though I served him not where men are preaching,

Though not for duty's sake this task was sought:

My Saviour on the mountains, too, is preaching;

—I rue it not.

I rue no mite which I in town or borough—

Unheeding—on the poor or sick bestowed,

That o'er a face, so sad and pale with sorrow,

A passing smile like heaven's sunlight flowed.

And though I oft my bread cast on the water:

E'en God in heaven feeds full many a sot;

A single rogue does not make me man's hater,

—I rue it not.

I rue no tear I shed, my heart exposing,

At foreign pain, or in my own dark nights,

When others, manlier, their hearts were closing,

And stood unmoved on faith's dispassioned heights.

And is it human that the human sorrows

Will moist mine eye and find my heart's soft spot:

My Jesus, too, wept with earth's stricken mourners,

—I rue it not.

That I a thousand times the Lord have queried

Where lovingly his spirit bade: believe!

That of his grace I many talents buried,

That, friends, I rue, that truly makes me grieve;

But that as Christian I a man remainéd,

And boldly viewed what's human on the spot,

In suff'ring, faith, love, hope a man unfeignéd;

—I rue it not.

Christian speculation, wherever it asserted itself, has remained mystical not only because the Churches have discouraged scientists and men of clear thought to attack the problem of Christian phi-

losophy, but mainly because there is a lingering influence of the Neo-Platonic emanation-theory left in Christian speculation, which by materialising that which is spiritual renders the conception of spirit obscure. If the Christian mystics had only clearly grasped the idea of the Logos, if they had understood that the word is the bread of life, that spirit originates through and lives in words, in language, they could have freed themselves of the thought that the soul is a being, or an entity, or a substance, and that the spiritual is an emanation from God.

The emanation-theory was always a favorite idea with Christian mystics. But the emanation idea is a mere allegory, for the soul does neither flow nor migrate. The soul is form, and the most important parts of the human soul are the significance-bearing forms of speech which contain in the simple shape of words eternal truth that can be communicated to others, and are thus transmitted from generation to generation. If the mystics had understood the spiritual nature of form, and further, the law of the preservation of form, they would have caught fuller glimpses of the truth and might have overcome their mysticism. Instead of seeing the solution of their philosophical problems as through a glass darkly, they might have acquired a clear and scientific comprehension of the nature of the spiritual as it manifests itself in both, the deity and the incarnations of the deity, the eternal and the embodiment of the eternal, in man, God, and the soul.

EDITOR.

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LITERARY CORRESPONDENCE.

FRANCE.

M. DE ROBERTY resumes and develops in his *L'Éthique, le psychisme social*, the second of his series of works on ethics, certain fundamental theses which we already know. Morals find in his opinion their explanation in the bio-sociological doctrine, which he substitutes for the incomplete vitalistic doctrine. The relations of life with social conditions ought to be conceived, therefore, as follows: (1) life is organic and physiological, or hyper-organic and social; (2) organic life, in its higher planes, blossoms into cerebral life, and this begins at the precise point where irritability and contractility become sensation, elementary representation, and so-called conscious or reasoned action; (3) social life begins (a) with ideation, as this grows more and more complex and more and more bound up with the *ideas of others*, and with (b) action, as this likewise grows more complex and is dominated and shaped by the *acts of others*. And here issues forth a new form of cosmic energy constituting what M. Roberty calls *collective psychism* or social existence. Thus, "ideas and the evolution of ideas form the sole contents, the sole subject-matter of sociology." As to the so-called contradictory notions of good and evil, justice and injustice, M. de Roberty eliminates entirely the difficulty which springs from the idea that the idea of struggle or antagonism is implied in the conservation of organic life. It is only, he says, when altruism has furnished its beautiful results and created the lofty forms of moral life, that individual reason and conscience, the products of collec-

tive reason and conscience, single off the good from the bad, the just from the unjust, order from disorder, and it is then only that through opposition to the positive concepts of union, concord, harmony, the negative concepts of division, of struggle and combat arise. "Such is the upshot," adds the author, "of the law of contrast which rules the simplest and most complicated operations of the mind."

These ideas as a whole, seem to me appropriate to the facts, although certain obscurities of language sometimes hide their significance, and upon the whole my thought accords quite well with that of M. de Roberty. Mr. Lester F. Ward is the writer who is probably nearest him (see for example, Ward's *Psychic Factors of Civilisation*). But it is possible that the deviation is to-day not so great between biological sociology and bio-sociology. No one now refuses to admit that the social fact is a distinct creation, the social individual a new being in some measure, and no one would deny the permanent influence of biological conditions on the evolution of societies. It is true, however, that the preponderating consideration of the one or the other point of view impresses a different stamp upon the science, and this is in itself a sufficient justification of the care with which the two spheres of ideas are distinguished.

I shall speak in this connexion of a very serious book by M. A. SABATIER, *Esquisse d'une philosophie de la religion d'après la psychologie et l'histoire*.¹ M. Sabatier appears to look upon dogmas (and this is the only point on which I shall remark) as variable formulas of an emotion which is always the same. It is not exact in my opinion to say that the religious emotion does not vary, for it is composed of many elements. It is not simple and primitive, and one should not conclude from the fragility of the beliefs in which it has expressed itself in different epochs, the impotence of some stronger and more stable doctrine which might sometime find its response in an entirely new sentiment. The religious sentiment is above all a *consensus* of emotions, and the dominating emotion which

¹ Fischbacher publisher.

gives its color to this consensus has varied in effect according to the genius of the races and individuals possessing it. This view of psychology and of history leads me to look upon the philosophy of religion in a somewhat different light from what M. Sabatier regards it, and it is on this very point that the promise is based of a religious evolution corresponding to the social state of the future.

M. J. Novicow, in *L'Avenir de la race blanche*,¹ refutes with much vehemence and sound common sense the pessimistic prophecies of certain authors regarding the competition and final inundation of the yellow and even black races upon our civilisation. These so-called inferior races would be fitted, he thinks, to play the rôle now filled by ours, if our race should ever happen to succumb to their overpowering numbers. He holds the view of the virtual equality of the races; the conception of noble races and inferior races does not seem justified to him in the light of what anthropology has done for history. "All depends," he says, "on circumstances, on the environment, on historical conditions, and not at all upon the ethnical elements." But M. Novicow who has pushed his thesis to an extravagant point here overlooks the very important fact that the peoples themselves have in a great measure produced this environment and these conditions and that they have prepared the way for the circumstances which subsequently intervene and affect their destiny. In any event the part played by accident is almost entirely eliminated if we consider, for example, the parallel evolution of England and France since the seventeenth century. This evolution shows in marked degree the genius of widely different peoples, differently endowed races, and we cannot imagine the substitution of the one for the other without completely upturning the course of events. Each of these peoples has actually created the conditions which have determined its subsequent history.

M. Novicow considers the hypothetical question of what would have happened had Carthage vanquished Rome. But this kind of reasoning is not permitted. One cannot base a demonstration upon

¹ F. Alcan, publisher.

hypothetical events which were precisely the events that were not realised. I admit that "race and civilisation are not associated by the bonds of cause and effect," if we understand thereby "anthropological" race. But this formula is subject to rectification if we understand by race "historical" race, that is to say, a social group which has acquired superiority at some given moment by virtue of complex conditions which it is the task of the historian to analyse as he best can in each case.

M. EDMOND DEMOLINS starts from an almost contrary thesis in a work which, though in other respects deficient, has created considerable notice in France, entitled *A quoi tient la supériorité des Anglo-Saxons*.¹ For M. Demolins the superiority in question is to be attributed to race, not the natural, primitive race, with which he is scarcely concerned at all, but the composite race, the group of men such as we find it already formed at a given moment and occupying a given geographical area. Race, so understood, is not distinguished by anthropological characters. It shows itself in deep-lying psychological traits, in a sum of well-defined tendencies culminating in positive institutions. The particularist tendency seems to dominate among the Anglo-Saxons, whilst among the Latins, the Germans, and the Slavs, the tendency is to create communal societies having either the family or the state for its basis. In the history of England M. Demolins shows the well-defined contrast between institutions imported by the Normans and the indigenous population of the country. This interesting comparison, which is based upon numerous proofs, serves to render many other facts plain. He explains, for example, the poor success in England and in the United States (excepting here the German communities on the American Continent) of the socialistic propaganda which is so widely spread in Germany, Italy, France, Spain, etc.

We have here, in fine, a sort of philosophy of history with economical foundations, and this philosophy is closely connected as a whole with the studies which were evoked by the late M. Le Play and which furnished for twelve years or thereabouts the ma-

¹ Didot, publisher.

terial of one of the best special Reviews of this subject, namely *La Science Sociale*, well known in America.

We have another work of the same class in M. CH. ANDLER'S *Les origines du socialisme d'état en Allemagne*.¹ "Individual liberty cannot flourish except in the bosom of a society in which justice prevails, and therefore we cannot lay upon individual liberty the responsibility of realising justice." Such is the fundamental proposition of state socialism. M. Andler (I restrict myself to merely pointing out the main features of his exhaustive study) seeks its origin in the writings of Hegel, Savigny, Gans, Lassalle, Rodbertus, Thünen, List, and expounds with great sagacity the theories propounded by these different masters regarding the law, production, and distribution of wealth, reserving for a subsequent volume the discussion of practical questions. He well shows the decisive influence of ideas upon political events in Germany. "Germany," he writes in an introduction, "will certainly be socialistic in the next generation. Will it be democratic also? Can we alter the social condition of individuals without modifying at the same time and in the same direction their political rights. This is the problem which the immediate future will have to solve. We can only wish that it might already have been determined."

The first question is perhaps to ascertain whether a socialistic Germany would succeed in prolonging its existence. For if state socialism is not the system which best favors production, it is also not that which will assure the most happiness or even the most justice, and if it is besides an anachronism the experiment is in danger of having lamentable results.

In the *Psycho-physiologie du génie et du talent*² of M. MAX NORDAU, we enter upon an entirely different subject. It is a valuable book and full of interesting *aperçus* which merit notice. I shall, however, restrict myself to the two central propositions of the

¹ This work and all others where the publisher's name is not specially mentioned, are published by Alcan.

² Traduction par A. Dietrich.

author regarding genius and heredity. M. Nordau first seeks to distinguish genius from talent. He sees between the two, not a simple quantitative difference, but above all a qualitative difference. "The average man—and talent falls here—" he says, "never sees the world itself but only its reflex in the eyes of genius. Genius alone is capable of forming something from the raw materials which the world furnishes, and afterwards men feel, judge, and act as the genius has felt, judged, and acted. Genius reposes upon an innate organic development, upon the perfection of the higher and exclusively human centres; talent upon the manifestation, acquired or strengthened by exercise, of natural dispositions existing in the constitution of a given race."

Several consequences follow. In the first place, the rejection of the doctrine of Lombroso which likens genius to insanity. M. Nordau, and I think he is right on this point, abandons artistic pseudo-genius to the alienist. But true geniuses are for him neither diseased nor degenerate. "Genius," he writes, "is evolutionary. It is the first appearance in an individual of new functions and without doubt also of new or modified brain-tissues destined, perhaps, to become typical for the whole species. Now, where is there any example of a new formation of the pathological order being evolutionary in character?" Doubtless so high a form of life is extremely fragile, but *a priori* genius is no more psychosis than athleticism is cardiopathy because the latter disease is common to great athletes.

The argument of the work is striking, although it rests partly upon the peculiar hypothesis of the author which I do not accept in its entirety. It seems to me prudent to speak of *modified* rather than of *new* tissues. In any event, the necessary distinction between genius and talent, difficult though it be at times, and profound as we may conceive it, does not seem to me to demand either that the man of genius should show from the outset a new function (and such a function could only have developed in the human species through hereditary acquisitions), or that the man of talent—poet, musician, or eminent painter—should not have certain qualifications which lift him clearly above the level of mediocrity.

"A powerful development of the centres of *reason* and of *will*—there," says M. Nordau, "lies the organic basis of the phenomenon we call genius." But talent, too, can dispense with neither will nor judgment; and the difference between the two, if reduced to a mere state of development of this or that nervous centre, would consequently seem quantitative. Still, M. Nordau remains none the less authorised to establish a new scale of genius "determined by the dignity of the tissue or of the organ upon the exceptional perfection of which it reposes." The man of judgment and action together, a Mohammed, a Napoleon, is placed in the first rank here. The thinkers come afterwards, the artists occupy the last place. These last scarcely merit the title of genius, for they are men of emotion and not of thought. I am not of those whom this view will startle. I share it and have insisted on it many times—upon the weak intellectual quality of artists in general as well as upon the excessive importance which is ascribed to them. I shall not prolong this discussion, however, but proceed to heredity.

The primitive law, M. Nordau maintains, is not heredity, but a sort of vital choice or liberty between all possible variant forms. This liberty of life limits heredity, that is to say, the resemblance to the ancestral form, and it also explains (this view is remarkable) the adaptation of organisms which is incomprehensible in the Darwinian theory. The primitive vital law implies the difference and the autonomy of individuals; consecutive heredity implies resemblance and dependence. Not believing in talent as in something preformed in the organism, M. Nordau also does not believe in heredity. Without doubt it is a disputable question that the son inherits in a mass the preformed constitution or stock of qualities which are going to make him a poet, painter, or musician. Example and education in childhood determines the vocation in many cases. It is true, however, that the profession of any art which is followed with any degree of superiority supposes at least the highest possible delicacy on the part of some particular nervous centre (hearing, for example, in musicians), and the quality of a perfect nervous apparatus can be transmitted, so creating the possibility of a subsequent development or of easier exercises. Thus heredity

would transmit the special qualities of which the spontaneous or acquired vocation would be constituted—the initial subject-matter of future education in some sort. And what matters it if these qualities, these aptitudes, find a different employment and come into some other constitutional arrangement! They have been none the less transmitted. Within these limits the theory of heredity remains defensible and still of great importance.

M. ENRICO FERRI gives us an extremely interesting work in his *Les criminels dans l'art et la littérature*,¹ a study of the criminal such as poets and artists have pictured him. I shall make but one observation on the subject of Orestes and Hamlet. M. Ferri sees in Orestes a criminal by passion, in Hamlet a criminal by insanity. Be it so. But we should not forget that the creation of Orestes was due primarily to a fact of the moral order: the Greek poets sought to effect a compromise between the ancient legend and the conscience of their times. I have shown this with sufficient evidence in my book *La morale dans le drame*, although I was unfortunately not well conversant with the facts of psychiatry when I published the first edition of this book eighteen years ago, and even in the second edition it was not sufficiently revised with regard to these facts.

A similar observation for Hamlet. If these two heroes placed in a like situation in different times have not the same character, it is all the more reason for our admiring the profound art of Shakespeare and of the Greek tragic poets. According to the ancient law, Orestes was constrained to kill his mother, and the ancient tragedy made him an impulsive person who was still capable of remorse, as M. Ferri tells us. According to the modern law, Hamlet was bound to spare his own mother, and Shakespeare made of him a person "insane with doubt," as M. Ferri phrases it, although the simple "melancholic type" which M. George Dumas recently portrayed for us might be equally applicable to him. Each poet has chosen the type which best suits the historical and moral situation

¹ Trad. Eug. Laurent.

of his hero, and he has treated it on the basis of personal observations more or less exact, but without thinking exclusively (I say this rather of Eschylus and Sophocles) of depicting a person that is diseased. That is why the interpretation of Hamlet appears to me more difficult than that of Macbeth for example, and I should still have some hesitation in accepting outright the explanation of the learned author to whom I submit this slight criticism.

L. ARRÉAT.

PARIS.

BOOK REVIEWS.

RAUMÄSTHETIK UND GEOMETRISCH-OPTISCHE TÄUSCHUNGEN. Von Theodor Lipps.

Mit 183 Figuren und einer Tafel. Leipzig: Johann Ambrosius Barth. 1897.

Pages, 424. Price, 12 Marks.

Readers of the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane* are already acquainted with the interesting views of Prof. Theodor Lipps of the University of Munich on optical illusions, the æsthetics of spatial form, etc., and all will be glad that the comprehensive researches of this psychological inquirer have now been gathered together into systematic form. Professor Lipps long ago sketched his ideas upon this subject in a memorial which formed part of the *Psychologische Festschrift* prepared in honor of the seventeenth birthday of Professor Helmholtz, but owing to lack of time could necessarily do little more than adumbrate the scope and meaning of his new conception. That conception was that the optical and the æsthetic impressions which we receive from geometrical forms are but two several aspects of one and the same thing, and have their common root in the *percepts* which arise in us, of *mechanical "activities."* He has sought in the present volume to give to this idea more extended development, to define particularly what these "mechanical activities" are, and to derive from them a systematic theory of geometric-optical illusions. His method, he proclaims, is throughout a psychological as distinguished from a physiological method. Not that he is opposed to the principle of parallelism by which for every psychical phenomenon a corresponding physiological process is sought, but he maintains that the selection of the scientific description which is involved in the employment of either of these methods in preference to the other must be determined by the conditions of the case, and by the prospect which each offers of being more successful. In the present instance, he is unable to do more than to describe the phenomena in question from their psychological side, leaving the other task for further research. As a psychologist he is content to abide by his own department of inquiry, etc.

His claims to success are stated in no uncertain terms. He believes he has absolutely dispatched the problem of geometric-optical illusions, so far as matters of principle are concerned. In points of detail he may have erred, but taking his views as a whole he stakes his pretensions to the least power of scientific thought upon the successful issue of his inquiries. In passing it is to be remarked that he

has waived entirely the application of the theorems of mathematics, claiming that degrees of aesthetic mechanical perception are not measurable, any more than is the relation between the "psychical energy" of the percept and its optical effect. There is moreness and lessness in optical illusions, but their quantitative determination lends nothing to their psychological estimation. We shall endeavor to give by one example a notion of the method and foundation of his inquiry.

The example which Professor Lipps has chosen for his first chapter is that of the Doric column. The Doric column extends vertically upward into space. Its vertical upward extension into space is its peculiar and proper "activity," where, by "activity" is meant "endeavor," "expenditure of force resulting in the accomplishment of something." Antagonistic activity is not wanting here but really exists in the form of gravity, according as gravity is overcome. The downward factor of gravity is as real as the upward factor of extension, the activity which opposes gravity; but the factor by which the column is a column for us, by which, so to speak, it realises its peculiar characteristic existence, is its *upward*, column-constituting tendency. On the other hand, the column extends not only vertically, it extends also horizontally. Here, however, the achievement is not one of extension but one of compression or restriction. If it were not for the horizontal compression, for the horizontal restriction, the column would cease to be a column and would melt away into pure formlessness. Its horizontal extension, too, is in a sense an "activity," but it is not such to the specific extent in which the compressing and restricting factor is an activity. The tendency of the column to expand horizontally is the very tendency which the nature and existence of the column requires should be counteracted and checked. In this sense the restricting or compressing activity of the column is its *peculiar, characteristic* "activity." Taking both things together we discover that the factor which threatens its vertical existence is the same as the factor which threatens its horizontal existence. Gravity can annul both. But the horizontal compression is really the condition precedent of the vertical extension. Because the column is compressed together, for that reason it rises vertically upward in space, for that reason it preserves its essential existence as a column. And herein consists its essential activity. The column is not a thing which crumbles out horizontally beneath the effects of gravity, but it is a form of matter which despite gravity, and overcoming gravity, compresses itself together and rears itself aloft. Its *living activity*, so to speak, is its endeavoring, its struggling aloft. If we surrender ourselves to the sense-impression made by the column, if we ask ourselves what movement is it *on the verge* of performing, what movement is it *endeavoring* to perform, we shall see it growing thinner and thinner in imagination and rising higher and higher in a vertical straight line. The other impression cannot arise in us, and here we have the ground of a well-known optical illusion. We see the column, not with our physical eye, but with the eye of the imagination, ever reaching to a loftier height than it has in reality. We overestimate its height and underestimate its breadth. The sense-perception is correct, but

we have added to it a mechanical interpretation which springs from our emotional, anthropomorphic way of fashioning the world.

We have in this description, as Professor Lippe claims, a psychological fact which has two elements. The form of the column exists, for our perception, as the result of certain mechanical conditions. It not only is, but it becomes, not once, but in every instant anew. We give a mechanical interpretation of the column, not reflectively but immediately, as a matter of direct perception. But the mechanical happening without us is not the only happening involved in this phenomenon. There is also a happening within us to which the outward happening is comparable or analogous. Here, according to the author, is the origin of the notion of all force, of all endeavor in nature, and so in the factors which are at present under consideration the existence of the column as I perceive it appears to me, not by reason of any reflexion, but unconsciously and immediately in the very moment in which I perceive it, not only as conditioned by mechanical causes, but as conditioned by mechanical causes which are *like those underlying my own personal activity*. The column acts as I act when I pull myself together and rise from my seat, or as another human being acts when doing a like thing. I cannot perceive the column without picturing it as invested with the activities which I have experience of in myself.

Now from all this proceeds not the full aesthetic impression made upon me by the Doric column, but certainly a part of that impression. Its rising aloft, its endeavoring, fills me with the same joy as does my own, or as does that of another. I *sympathise* with its behavior, with its method of expressing its intrinsic character and life because I recognise in it a natural joy-giving form of conduct which is my own, and thus the feeling of joyous satisfaction at all spatial forms, and, the author adds, all aesthetic pleasure generally, is a beatifying, pleasure-giving feeling of sympathy.

We are unable for lack of space to follow Professor Lipps into his interesting discussions, many of which are familiar to our readers from former mention. The book abounds in figures, by experimenting with which the reader is lead under the guidance of the author's analysis to a theory of optical illusions and to a theory of the aesthetics of space. The subject is one in which not only the special psychologist is interested, but also the general scientific student, who will have the advantage of being able to make the experiments in question without apparatus or paraphernalia of any kind. The study is one of the widest scope and import, and involves educational elements of considerable significance.

EMPFINDEN UND DENKEN. Eine physiologische Untersuchung über die Natur des menschlichen Verstandes. By Albrecht Rau. Giessen: Emil Roth. 1896. Pages, 385.

The chief purpose of this volume is to investigate the so-called "law of specific sense-energies" as first enunciated in its simplest form by Albrecht von Haller,

then sharply criticised and seriously modified by Johannes Müller and generally accepted, as thus formulated, by Henle, DuBois-Reymond, Helmholtz, and other authorities in the province of neuro-physiology. This law as stated by Johannes Müller is as follows: "Feeling is not the transmission of a quality or a condition of external bodies to consciousness, but the transmission of a quality or condition of our nerves to consciousness produced by the external world." Thus, he adds by way of illustration, we do not feel the knife which causes us pain, but the condition of our nerves as painful. The mechanical vibration, which according to the undulatory theory produces light, is not in itself a sensation of light, and, even if it could become an object of consciousness, would be the consciousness of a vibration; not until it acts upon the optic nerve as the mediator between the cause and the consciousness is it perceived to be luminous. The vibration of a body is not in itself a tone; the tone begins with the sensation through the quality of the auditory nerve, and the sensory nerve feels the same vibration of the apparently sounding body as a trembling sensation.

Interesting and far-reaching deductions from this theory have been drawn by Jacob Henle, DuBois-Reymond and other representatives of physiological idealism, who maintain that as the operation of our thinking faculty leads us to infer the existence of matter, so the operation of the same faculty may lead us just as logically to infer the existence of spirit; in neither case is our belief based upon direct and positive knowledge. If contact with a knife causes pain, we know that this pain is the expression of our own nerves. Indeed, it is possible, under certain physical conditions, to experience it without any apparent external cause; we then attribute it to some unseen disturbance such as a morbid affection of the tissues or the contact of the air with the nerve of a tooth. In every instance, however, the sensation is purely subjective and the existence of an outward cause is simply an assumption or presupposition. The same is true of colors, tones, scents, and savors, which have no existence outside of ourselves. The number of the properties of matter depends upon the number and acuteness of the senses, the lack of a single one of which is attended with the loss of a corresponding class of properties. Thus color does not exist for the blind nor sound for the deaf, because the nerve-substances, in which vibrations are transformed into color or sound and transmitted to consciousness, are either wanting or wholly inactive. The statement in the Mosaic cosmogony "and there was light" is, as DuBois-Reymond observes, "physiologically false, for there could be no light until there was an organism endowed to some degree with the power of sight. Light began to exist with the development of the first small pigmentary spots, which enabled the infusoria to distinguish it from darkness. It is the substance of the optic and auditory nerves which fills with glowing colors and harmonious sounds the otherwise dark and silent world of ponderable and imponderable matter. This distrust of the testimony of the senses, leading logically to a denial of the existence of the external world, is little more than a revival of the idealism of the eighteenth century, which was already latent

in the philosophical speculations of Descartes and found its fullest and most unequivocal expression in the writings of George Berkeley. The logical consequences of physiological idealism, corresponding to Berkeleianism in metaphysics, have been most clearly drawn and most explicitly stated by DuBois-Reymond's pupil, Prof. J. Rosenthal, who declares that the apparent agreement between our sensations and the external processes, by which they are called forth, is an illusion arising from the use of the same designation for both processes, which have nothing at all in common. Thus the process of a luminous sensation bears no resemblance to the process of vibrations in ether, which produce it, as is evident from the fact that the same vibrations, when they act upon the skin, produce a wholly different sensation, namely, heat. The vibrations of the tuning-fork, for example, will be felt and heard and may also be seen, according as they excite the sensory and auditory and possibly the optic nerves. These vibrations, however, are always the same and have nothing in common with the sensations which they produce. Physical science teaches us that the undulatory motion in ether, which we sometimes call light and sometimes heat, is the same motion. The common division of these physical motions into sound, light, heat, etc., is therefore irrational, because it emphasises as regards these motions an accidental moment, namely, the manner in which they act upon man as a creature endowed with different sensations, but does not apply to magnetic, electric, and other processes, for which a different system of classification is used. "The scientific investigation of the physical processes on one hand," says Rosenthal, "and of the physiological processes of the sensations on the other, hand, exposes the error, which has taken all the deeper root, because language employs the same words for the different processes and thereby renders it more difficult to distinguish between them."

This theory in its logical consequences as deduced by Ran, discredits the validity of the testimony of our senses and thereby destroys the very foundations on which the natural sciences rest. Thus the knowledge of the mutual relations of bodies, which it is the aim of physics to acquire, depends upon the ability of our senses to receive accurate impressions from the external world and to convey them to the brain where they become objects of consciousness. Suppose, says Ran, that Rosenthal should order an apparatus to aid him in his physiological researches, but should find on trial that it conveyed false impressions and led to incorrect inclusions. Would he continue to use it or would he not rather discard it at once as worthless? Our senses are instruments of investigation, with which nature has endowed us. But what service can they render us if their testimony is untrustworthy? If Rosenthal's idealistic standpoint be tenable, he, as a physiologist, must first get rid of his eyes and ears in order to understand the true nature of light and sound; but instead of doing so, he devises the finest and most complicated instruments for the purpose of increasing his seeing and hearing powers; in other words, he is constantly exercising his inventive skill in adding to the energy and efficiency

of the organs of sense which are constantly deceiving him. His conduct is therefore a complete *reductio ad absurdum* of his theory.

In the second chapter we have a presentation of the views of A. W. Volkmann, Wilhelm Wundt, and other physiologists and physiological psychologists in opposition to Müller's law of specific sense-energies, which is shown to be inconsistent with the facts of biology and the modern theory of descent. Interesting in this connexion are the experiments of Graber, Plateau, and others with worms and reptiles, proving that they distinguish light from darkness by means of the surface of the skin, and Sir John Lubbock's observations of ants and wood-lice, all of which are incompatible with Rosenthal's formulation of Müller's law. The third chapter defines Lotze's attitude to this law and is followed by sections on vitalism and spiritualism, Kant and Lotze, the correct interpretation of Müller's law by G. H. Meyer in conformity with the doctrine of descent, the logical method of natural philosophy, the scientific and speculative significance of conceptions, acoustics with a criticism of Helmholtz's theory of tone-sensations and its influence on other theories, and finally a lucid exposition of the author's philosophy of sensation, in which he maintains that thinking is a secondary function and that the primary source of all knowledge lies in the sensations, of which the understanding is a product. Mind is therefore naturally and gradually developed out of the feelings, and it is the purpose of this concluding chapter to trace this process of evolution in connexion with the growth and co-ordination of the organs of touch, taste, smell, hearing, and seeing in the child from the moment of its birth as observed and described by Meynert, Freyer, and Genzmer. "Thought," says Feuerbach, "is nothing but a past sensation, a sensation that no longer exists, an indirect, nullified, negatived sensation. A thing does not become an object of thought until it has vanished from view and from sensation. The question What is lightning? does not arise until the lightning is past." In general, thinking is feeling extended to remote or absent objects; it is feeling what is no longer really felt, or seeing what is no longer actually seen. We see the external movement of the mass with the bodily eye; we see with the mind's eye or think the inner movement of the molecules of which the mass is composed; but it is through the visible massive movement that the invisible molecular movement is revealed to us.

It is impossible in this brief notice to enter into a critical discussion of the questions here involved. Whether our readers may accept or repudiate Ran's conclusions, they can hardly fail to be interested in his thoroughly independent and masterly exposition of the relations between feeling and thinking in the light of recent physiological and biological researches and under the all-pervading influence of the doctrine of evolution.

CONTRIBUTIONS TO THE ANALYSIS OF THE SENSATIONS. By Dr. Ernst Mach, formerly Professor of Physics in the University of Prague, now Professor of the History and Theory of Inductive Science in the University of Vienna.

Translated by C. M. Williams. With Thirty-seven Cuts. Chicago: The Open Court Publishing Co. 1897. Pages, 208. Price, \$1.25 net.

The present work has in this translation experienced considerable augmentation at the hands of the author. Numerous notes have been added completing the discussions and bringing them down to date, while two appendices containing much supplementary and explanatory matter have been incorporated in the book. The first appendix on "Facts and Mental Symbols" is of extreme importance to students of the history and theory of science, as an effort to do away altogether with the dualism of feeling and motion, of an inward subjective world and an outward objective reality. It is a species of autobiographical apologia for the splendid "Introductory Remarks" to the book, which aim at banishing the metaphysical from scientific reasoning, and it hence throws much light on the growth of scientific hypotheses. In both these chapters Professor Mach seeks a monistic theory of the world which is faultlessly and genuinely monistic. That view of monism which sees in mind and matter two *aspects* of existence he regards as disguised dualism. To him the contrast between the psychical and the physical is not a duality but an identity. It is simply a connexion in a different way of the same fundamental elements of the world. An independent, underlying metaphysical nucleus of reality, which by its actions produces sensations, Professor Mach does not admit. All such hypotheses he regards as figments of the unconsciously acting, natural intellect in its effort at explaining things which need no explanation. To him the elements of the world are given in sensations. The different connexions of these elements alone determine the psychical or the physical character of the relations of the world. The world is, so to speak, a viscous *continuum* of elements, showing more coherency and density at certain spots, in which spots the elements are, metaphorically speaking, centred and focussed. These spots are the egos. There is no gulf between the ego and the world. "A variously interconnected content of consciousness is in no respect more difficult to understand than a rich and diversified interconnexion of the world." For the real world and the perceived world are one,—different settings only of the kaleidoscopic¹ play of the elements. This view has been characterised as idealism, as sensationalism, and as phenomenalism, and in an historical sense the designation is correct. But it is a dangerous and prejudicial practice to apply to *any* new and carefully worked-out theory a name having fixed and condemnatory historical connotations. No such characterisations, therefore, are to the point. Professor Mach insists that his view is *realism* in the true sense of that word, and that, despite the appearance of such to the inattentive reader, it is *not* Berkeleyanism. Both the Introductory Remarks and the first Appendix are a specimen of *descriptive* philosophical analysis which both philosophical and scientific students will do well to study.

As to the matter proper of the book it has arisen from the conviction of the

¹ Not the author's word, of course.

author that "the foundations of science as a whole and of physics in particular, await their next greatest elucidations from the side of biology, and especially from the analysis of the sensations." The chapters of the book are a connected recapitulation of all that the author has done in psychology which, despite its small volume, is in both contents and method of rare value. As the translator well says: "The matter contained in a book is by no means proportioned to its size. If this were so, the present treatise . . . must be a bulky one."

The principle which is at the basis of the research of the present work is that there are as many physico-chemical neural processes as there are distinguishable qualities of sensation. This is the principle of the complete parallelism of the psychical and physical. Such was Helmholtz's explanation of tone-sensation, etc. To the exposition of this fruitful fundamental principle Professor Mach has devoted a separate chapter. The following chapters are devoted to space and sight sensations, the discussion of the æsthetic sensations of symmetry, sensations of motion, perspective, spatial solidity, etc. The discussions here are extremely original and pregnant with valuable suggestions. Convincing views are advanced in the chapter on "Time-Sensation," while in the section on "Sensations of Tone" we have the suggestion of a new hypothesis which would reduce the many specific energies assumed by Helmholtz to two only. The criticism of the theories of sound-sensation have already contributed, and will in the future contribute, greatly to the elucidation of the relations obtaining in the province of tone. Not the least important chapter in the book is the last on "Physics," where the author shows the influence of his psychological investigations on the altered mode of conception of physics. This chapter is a distinct contribution to the theory of science. Although published eleven years ago, Professor Mach's book is one which by its solidity and the permanent value of its results will never grow old.

We have also to mention briefly the appearance of the second edition of the same author's *Popular Scientific Lectures*. Four new articles have been added to this volume, viz., "The Part Played by Accident in Invention and Discovery," the recent lecture on "Sensations of Orientation," and two brief essays on the history of "Acoustics" and of "Spatial Vision." The same edition will also shortly be increased by an entirely new article on "The Photography of Projectiles," making the augmentation of new matter considerably more than one hundred pages. (Price, \$1.00. Fifty Cuts. 382 pages.)

VERSUCH EINER PHILOSOPHISCHEN SELEKTIONSTHEORIE. Von Dr. phil. Johannes Unbehaun. Jena: Gustav Fischer. Pages, 150. Price, 3 Marks.

Dr. Unbehaun has undertaken the task of critically examining the philosophical foundations of the theory of selection viewed as a general method of nature and thought. Darwin's principle has crept into all domains of knowledge and conduct, and so has become invested with an importance extending far beyond the special realm of biology. Dr. Unbehaun, accordingly, strips the theory of selec-

tion of all the overgrowths and accretions which have been gathered about it by its being applied in special fields under special circumstances, and seeks to set forth the theory in its purest and most general abstract form. Every form of it, therefore, must be traced back to a common root, to some ultimate principle, appearing in the end as a piece of purely formal, logical philosophy. To give to his expressions greater exactness, he has employed mathematical theorems throughout, the subject being one which from its quasi-statistical character readily lends itself to such treatment. As to the contents of the little book, we have a brief and general retrospect of the ancient theories of selection, a brief review of its history through Malthus, Darwin, Wallace, Roux, and in some of its more allegorical extensions to the domain of chemistry, astronomy, geology, etc. In the second chapter the author proceeds to the enunciation of a purely deductive theory of selection where he applies mathematical analysis. As the result of all this philosophical and mathematical analysis we have the following, rather empty outcome, which scarcely seems to contain more than is contained in the current definitions of the theory; to-wit:

"By the side of existing adapted forms, that is, forms capable of existence, there always arise or arose many non-adapted forms, by the side of the prizes in the lottery of life, many blanks. Only on the submersion of the forms incapable of existence is the existing degree of average adaptability reached. The principle of 'progressive' selection presupposes that the newly originating forms should show as regards already existing forms both conservative and variational tendencies—in which case we have unrestricted progress."

The discussion itself, of course, being conducted with reference to definite facts, is more rich in associations and suggestions than this bald formula. The upshot of the whole book is that evolution is reducible to three principles: (1) a conservative principle; (2) a variational principle; and (3) a principle which makes against retrogression, which principle is essentially selection. Selection with conservation and variation are the condition of unlimited progress. The author finds here the foundations of an evolutionist philosophy which he proposes to develop in a later work.

VORLESUNGEN ÜBER DIE MENSCHEN- UND THIERSEELE. Von *Wilhelm Wundt*.

Dritte, umgearbeitete Auflage. Hamburg und Leipzig: Leopold Voss. 1897. Pages, 519.

The great value and popularity of Professor Wundt's lectures on Human and Animal Psychology is evidenced by the exhaustion of the second new German edition within the relatively short space of five years. Our readers will remember that the present work of Professor Wundt is a complete re-elaboration of one of his earliest youthful publications (1863) and that although bearing the same title it is practically a new work. The second German edition of the work has been translated into English by Mr. Creighton and Mr. Titchener of Cornell University, and

is published by The Macmillan Company. The third German edition is essentially the same as the second with respect to arrangement, but it has been carefully revised and in many places extended and improved, particularly in the chapters on Feelings, Emotions, Will, and Time. For details regarding the method, contents, and purpose of the work we refer our readers to the excellent review of the second edition by Professor Shorey in Vol. III., No. 2, of *The Monist*. All students of psychology should have and read Wundt's Lectures, for as the production of the most eminent living psychologist they are one of the best general introductions to psychology that exist. It is greatly to be regretted that the publishers have not supplied an index to the new edition, but it seems that nothing short of an Imperial edict will induce German publishers to make a systematic practice of this. If it could be done, humanity would be far more benefited than by any scheme of Chinese conquest or foreign colonisation.

PSYCHOLOGIE ALS ERFAHRUNGSWISSENSCHAFT. Von *Hans Cornelius*. Leipzig:

B. G. Teubner. 1897. Pages, 445. Price, 10 Marks.

Dr. Cornelius has written a very promising work, to judge from the remarks on "Method" which he has prefixed to his expositions. His book does not profess to be a complete enumeration and presentation of the facts of psychology and of the theories which have been advanced in explanation thereof, but its object is rather that of establishing a sound epistemological foundation for the science, or of giving a purely empirical theory of psychical facts to the entire exclusion of metaphysical hypotheses. At the basis of his considerations he has laid the methodological principles of Kirchhoff and Mach by which these inquirers replace the metaphysical ideas of physics by empirical conceptions merely epitomising the facts. According to this view, and according to the conception that explanation is only simplified and compendious description of facts, the author defines the object of psychology to be the completest and simplest possible compendious description of the *psychical* facts. This science should not begin with abstractions or hypotheses but only with direct and actually *lived* psychical experiences. No notion is admissible of which the fundamental psychical facts cannot be pointed to in experience. He compares his method to that which Hume pursued in his chief work, and with James's classical analysis of the stream of consciousness. In so far as his expositions are a theory of knowledge, they are largely in harmony with the inquiries of Avenarius and Mach. Kantian points of view are also present. At variance with the axioms of the author's thought are also the atomistic, the associational, and cerebral psychologies.

The work is divided into seven chapters, with an Introduction. In the Introduction the facts of the psychical life, as Dr. Cornelius conceives them, are stated as those of any other science would be, alone and for themselves and without reference to material processes. The first chapter then considers the elementary facts of the stream of consciousness, inventories the contents of consciousness, discusses

memory, recognition, abstraction, symbols, etc. The second chapter treats of the coherency of experience, laying greatest stress upon the principle of the economy of thought. We have here a treatment of subject and object, etc. In the third chapter psychical analysis and the notion of unperceived contents of consciousness are developed. Succession, time, attention, perception, and the concept of number, etc., here receive consideration. The fourth chapter discusses sensation, memory, and imagination; the fifth, the objective world, including the problem of the thing-in-itself, objective space, the facts of geometry, vision, etc. The sixth chapter is more logical in content, and deals with truth and error. In the seventh chapter we have feeling and will discussed.

The language and purpose of Dr. Cornelius are clear. The points on which he insists are points deserving emphasis. As to method his attempt is significant. If a science of psychology in the sense of the other sciences is ever built up, it must be upon some such foundations, and whether one agrees with Dr. Cornelius's detailed accomplishment of his task or not, one must nevertheless accord to him the credit of having approached his subject from a novel and fruitful point of view. From merely *envisaging* the subject in this manner, one can derive great profit

THE LIVING SUBSTANCE AS SUCH AND AS ORGANISM. By *Gwendolen Foulke Andrews*. Supplement to Vol. XII. of *Journal of Morphology*. Boston: Ginn and Co.

The chemist refers the qualities of all substances to the different combinations of different atoms. The physicist starts with the molecule. What is the vital unit, to whose changes and combinations the biologist can refer differences between different tissues and organisms?

The oldest theories concerning life would seem to regard it as an energy radiating from some controlling centre in the blood or nervous system and thus vivifying a comparatively inert mass. Only comparatively lately has its inherence in every part of the organism been universally accepted. Only when this view of life as pervading or characterising every part of the organism, has been established, could there be any serious search for life-units.

This inquiry has been practically the work of the present century, although about a hundred years ago Bichat showed that the body was composed of a comparatively small number of textures or tissues which recurred in the most different organs. The theory of the cell as the fundamental constituent and true morphological unit of the body is but little more than fifty years old. These little masses of protoplasm, each having its own more resistant centre, the nucleus, and surrounded by its membrane certainly seemed to be the true and fundamental vital units. The apparently homogeneous protoplasm possessed all the vital powers and could perform all functions, the nucleus was regarded as hardly more than a little less fluid condensation of the protoplasm, the cell-membrane gave the mass indi-

viduality. Egg and spermatozoon were found to be single cells, the earliest embryonic stages are evidently little clusters of similar cells, every cell arises from a pre-existing cell, and every tissue arises from, and is composed of, cells. What better or more fundamental unit could be asked?

So Virchow speaking on this subject in 1858 could say: "Every animal presents itself as a sum of vital unities, every one of which manifests all the characteristics of life. . . . A so-called individual always represents a kind of social arrangement of parts, in which a number of individual existences are mutually dependent, etc." And Haeckel restates, only more emphatically, the same thought when he calls the animal a "cell-republic."

That the cell is a morphological unit possessing a certain degree of individuality cannot well be denied. Every living body is certainly composed wholly of cells and their products. But in spite of all this we may not be looking at the animal from the best standpoint when we call it a cell-republic.

For the extreme exponents of the cell theory in emphasising the individuality of the cell seem often to lose sight of the individuality of the organism. Against this one-sided view strong protests have already been made.

Thus many years ago Huxley wrote: "They (the cells) are no more the producers of the vital phenomena than the shells scattered along the sea-beach are the instruments by which the gravitative force of the moon acts upon the ocean. Like these, the cells mark only where the vital tides have been, and how they have acted."

Mrs. Andrews's monograph is a valuable contribution to biological science bearing directly upon this view. It is the result of years of patient and laborious observation. She has studied the living substance in its living condition. And the difficulties and discouragements of such study can be appreciated only by those who have attempted the same thing and have given it up in despair. The author supports in the main Bütschli's view that protoplasm is a microscopic foam, composed of exceedingly minute vesicles containing various solutions surrounded by films of a more viscous material. But even these viscous films are composed of a finer foam or emulsion. The fluid drops are separated from one another by the films, while these latter unite to form a continuous structure like a honey-comb. The continuous substance is the essential living material.

The continuous substance is continually changing in viscosity, arrangement, and function. The pseudopodia, or long slender processes of an amœba, may "extend like stiff bristles, or bend about like tactile organs, or lash the water like overgrown cilia or flagella. But a momentary touch upon the cover glass will in one moment convert all this display into inactivity, leaving but a shapeless lump. (P. 29.)

About twenty-five pages are devoted to "Areal Differentiation," i. e., the appearance of protective, contractile, transmissive, and other areas within the living substance of the simplest animals, and in developing eggs. "In the so-called 'low' and 'primitive' forms of life, the substance-organisation is seen to be very com-

"plex, if here as in the metazoa the sum of all areal differentiations be taken as the "unit of count; but it is less stable and more fleeting,—often, indeed, to the point "of evanescence. Grosser structures are openly transmuted, whereas in the adult "higher forms there is a more stable mask of structure behind which the substance "carries on its unstable processes." (P. 65.) And even in the most stable tissues of higher animals local transformations and transmutations of areal structure are continually taking place. These, however transient, are the substance organs in distinction from the so-called organs of the individual organism.

Having shown the structure and areal differentiation of the living substance the author proceeds to Protoplasmic Activities and Cell Division. Perhaps the most interesting pages in this section are those on the filose formations or "thread-spinnings" of protoplasm. These threads were protruded abundantly by protozoa from their exposed surfaces and are hardly to be explained, if at all, by the mere physical surface-tension of a foam-structure. They occur also in the earlier embryonic stages, spun from cell to cell. "Since in certain eggs in the 8-16-celled "stage, in which the cells had been induced by continued pressure to separate "quite widely from each other while continuing their filose activities, the order of "cleavage and arrangement of cells in the characteristic spiral was not changed, it "seemed clearly proven that by the filamentous connexions there was maintained "true correlation and interaction of cells, notwithstanding a separation of their "pellicular surfaces. The fact that such was the case was noticed and pointed out "by Dr. Whitman long before I discovered the actual means by which the seem- "ingly inhibitory conditions were transcended." (P. 77.)

In eggs in the 4-16-celled stages the cells were caused to separate by more rapid and sudden pressure. "If actually separated, but without rupturing the "membrane perceptibly, as was done a number of times by pressure of a mixed "rolling and squeezing nature, the cells passed soon after through a great change "of viscosity, visibly relaxing. They then showed rather marked change of con- "tour, and afterward renewed their spinnings until once more connexion was re- "established amongst themselves, when by degrees they drew more and more closely "together until they touched. The walls then coalesced and the two, four, six, "eight, twelve, or more, cells were again a solid mass. . . . There can hardly "be a doubt but that there is here shown a definite physiological resistance to cer- "tain adverse mechanical conditions in environment; that the living substance re- "sponds in character of its own powers to stimulus of a given sort; that this "response is to conditions which are probably new to the substance, and is, more- "over, contrary in its nature to that given by purely physical foams." (Pp. 83, 84.)

The sections on the "New Structural Formula for Protoplasm" and the "Liv- ing Substance as Such, and as Organism," are full of thought, suggestion, and in- teresting observations, but must be read in their entirety to be appreciated.

The True Biological Standpoint from which to consider the living organism is therefore, according to our author, not the cell, nor the tissue, nor the organ, but

the substance itself in which cell, tissue, and organ are but areas of differentiation. Even the individual organism itself is but a means to the development of the substance through which it may attain an ever higher condition. The strongest and fittest substance, and that most powerful to control its environment, survives. The survival of the fittest is the survival of the fittest substance. In the section on the Selection of Environment by the Living Substance special emphasis is laid on the internal environment of the substance in the contents of the foam vesicles. "This is more or less completely within its control, yet influences it largely and even to some extent controls it, physically and chemically." "External environment represents rather opportunities for the organised living substance. Internal environment represents at a given moment not only opportunities but intrinsic necessities for the substance." "From this standpoint the organism appears in the guise of a machine or device framed by the substance as such to secure its own specific internal environment." "Substance habit . . . has always been along lines of increased control, direct or indirect, of external environmental conditions." But scattered quotations, taken out of their connexion, can give but a poor idea of the thought and argument.

The standpoint of the author can perhaps be best seen from the following extract from the section on Heredity (p. 151):

"Up to this point it has been cumulatively shown that cell phenomena are underlain by such phenomena of the continuous substance as would seem to inhibit us from using cells, even broadly, as primary units of physiological organisation;—the new facts urging us to trace substance phenomena in a physical and physiological continuity throughout all parts of organisms; to ignore cell-limits, except as they fall within this interpretation; to see in cell-walls and in nuclei local and even temporary substance-organs belonging primarily to the mass and but secondarily to cells, their curious repetition being taken in relation to general needs of the substance as such rather than as parts of cells as units of structure;—in short to study cells as localities in a mass organisation of the continuous substance and as local expressions of substance habit in a significantly common grouping. . . . Organs no longer appear as compounds of certain different sorts of cells, but as a complex of minute substance-organs whose multiplication baffles even the imagination, for they not only extend in a lessening series into the invisible subdivisions of the continuous substance but are constantly being transmuted into new structures."

We must leave important sections of the work entirely unnoticed. The great mass of observations and suggestions, many of them exceedingly interesting, cannot be touched in a review. The work is crowded with them. Indeed the line of argument often seems to be lost in the mass of facts adduced in its support or of inference from these. Sentences too are often obscure and require careful perusal before the exact meaning can be perceived. But the thought is there and will repay the effort of the reader.

To many, doubtless, the author will seem to have gone to an opposite extreme as far from the true mean as the position of the most bigoted cell theorist. But the evidence is continually increasing that the substance, rather than the cell furnishes us the true standpoint from which to study and explain the facts of anatomy and physiology. It is gradually becoming clear that cells are only subordinate, and by no means ultimate, fundamental, or comparatively independent, centres in one mass of substance, controlled by the organism as a whole. The theory of the organism which makes it a mere multitude of co-operating cells, like that theory of state-rights which makes of our nation a mere confederation of states, is liable to lead to very unsafe deductions. We must continue to speak of cells with their different powers and structures, but we must remember that cell-structure is only an areal differentiation in one mass of substance, and that its powers are delegated by the organism. One substance, characterised by sensibility, irritability, or by whatever name we may choose to call it, continuous through the organism, and passing in the reproductive elements from generation to generation through all the chain of life in time past and present, ever changing and yet persisting, resistant and yet indefinitely adaptable;—such a substance would seem to furnish the basis for all vital phenomena.

But what becomes of our search for the vital, morphological units? We can hardly think, much less argue, concerning protoplasm without postulating something of the kind. We talk learnedly of physiological units and pangens, of plastidule and biophore. But we know only substance. But is there one fundamental substance, protean in its functions? Certainly protoplasm seems to be a mixture of various chemical compounds. Still all these substances may be merely more definite areal differentiations of one primitive protoplasm. Even if we could arrive at one primitive, homogeneous, living substance, would the real difficulties in the way of an understanding of its functions and powers be lessened? We cannot see that they would. The correlation between structures and actions of different parts of a homogeneous substance would seem less rather than more conceivable. This is the great enigma of life; the "fitsomeness" of the substance, the conformity of it to its inclusions and the molding of them to it, the fitting of its parts to one another and of itself to its environment. And from the solution of this enigma we seem as far removed as ever.

JOHN M. TYLER.

THE CHANCES OF DEATH AND OTHER STUDIES IN EVOLUTION. By *Karl Pearson*, M. A., F. R. S. With Illustrations. In Two Volumes. London and New York: Edward Arnold, Publisher.

The title of this book renders the first essay more prominent than the rest of the articles, and is apt to give a wrong impression to the book-buyer who glances over the pages of a catalogue. The book consists of a collection of essays on most various topics—the Roulette of Monte Carlo; Reproductive Selection and Its Chances; Woman and Labor; Woman as a Witch; the Passion Play, a Study of

the Evolution of Western Christianity, etc., but all are treated from the same point of view which replaces the colored spectacles through which the Märchen looks at the world by the exact figures of a scientific conception of facts, and thus Karl Pearson sheds much light on our old traditions, inherited opinions, and institutions. In order to characterise the treatment which all these questions receive at the hand of our author, we sketch here his exposition of the Märchen as a witness of an old civilisation which preceded Christianity and may have prevailed in Germany in the age when Tacitus wrote or even previous to it. Professor Pearson says:

"Ashiepatle, the dirty ash-lad, Hans 'der Dummling,' a 'Schneiderlein,' or 'the miller's boy, sets out into the world to seek his luck. He is courteous and 'friendly to an old woman whom he meets in the forest, and who possesses magical powers. He travels through many kingdoms, and at last he comes to one 'where the king is in difficulties from dragons or giants, or in domestic trouble 'owing to his daughter declining matrimony until a wooer is found who can perform certain notable feats. Hans, with the aid of the aforesaid old woman, either 'achieves prodigious victories, or accomplishes all the tasks proposed to him. He 'then demands his bride; he marries the princess and becomes heir to the 'throne."

In the Märchenland "kings were as plenty as blackberries," and "the great 'bulk of the population we have to deal with leads a country life. We may be 'taken into a village, but rarely, if ever, into a town. We have to deal with 'peasants and with hunters, with men and women of the fields and of the forests. 'We are introduced to goose-girls, to swineherds, to women who spend their time 'amid cows and goats, and men who chop wood and hunt. If the craftsman comes 'in, it is the craftsman of the village community, the blacksmith, the tailor, or the 'miller. If we go into towns and palaces, it is the simpleton and country lad who 'takes us there; we do not deal with ships and merchandise, but with agricultural produce and the trophies of the chase. Cathedrals and knights and men in 'armor are not of our company. If we want advice or sympathy we seek it not of 'priests or lawyers, of bailies or *Amtmänner*; we go to the animals, to a *weise 'Frau* or a *Hexe*. With the exception of kings, to be referred to later, the '*Schultheiss*, or elected head of a peasant community, is almost the chief authority we come across. In short, the people who developed the Teutonic Märchen, 'as we know it in our Grimm, were not a town population, but one living by agriculture and hunting; not a people of the mountains, the snows, and the lakes, 'but a people living rather in the clearings of the forest; a people with a primitive agriculture, chiefly conducted by women; a people to whom the witch and 'wise woman, rather than the priest and knight, were the guides and instructors 'in life. The Märchen have been added to, developed, modified; all sorts of 'later elements and personages have been grafted on to them, but, taken in the 'bulk, we see quite clearly that they are not the production of an age which 'knew Christianity and chivalry."

The civilisation of the *Märchen* is the period of matriarchy. The man marries into the wife's family; the mother goddess is still of great influence; the *Hexe* is by no means the ugly hag of the Middle Ages, but rather the wise woman, the queen. To conquer a kingdom in those days one had simply to kill the king and marry the queen, or if it was done in a more peaceful way, one married the daughter of a king. In the Norse tale *De syv Folerne* the king says to Ashlad, his son-in-law:

"You have got half the kingdom, and the other half you shall have on my death; for my sons can win land and kingdoms for themselves, now they are again princes."

Professor Pearson asks:

"And what became of *Märchenland*? It faded away before a world of grammar, history, and geography, a hundred times more idle and unreal than itself."

Our author concludes his study with these words:

"As we read fairy stories to our children, we may study history ourselves. No longer oppressed with the unreal and the *baroque*, we may see primitive human customs, and the life of primitive man and woman, cropping out in almost every sentence of the nursery tale. Written history tells us little of these things, they must be learnt, so to speak, from the mouths of babes. But there they are in the *Märchen* as invaluable fossils for those who will stoop to pick them up and study them. Back in the far past we can build up the life of our ancestry—the little kingdoms, the queen or her daughter as king-maker, the simple life of the royal household, and the humble candidate for the kingship, the priestess with her control of the weather, and her power over youth and maid. In the dimmest distance we see traces of the earlier kindred group-marriage, and in the nearer foreground the beginnings of that fight with patriarchal institutions which led the priestess to be branded by the new Christian civilisation as the evil-working witch of the Middle Ages. All this and something more may be learnt by the elder, while little eyes sparkle and little cheeks grow warm over the success which attends kindly, simple Ashiepatle in the search for his luck."

BUDDHISM AND ITS CHRISTIAN CRITICS. By Dr. Paul Carus. Chicago: The Open Court Publishing Co. 1897. Pages, 316. Price, \$1.25.

The main difficulty, perhaps, about Buddhism is the apparent contradiction involved in its teaching that there is no soul and yet preaching morals, the purification of the soul, and its immortality. Almost all criticisms of Buddhism either denounce the system as inconsistent, or condemn it as atheism and nihilism. It is these problems which all who study Buddhism will encounter, and almost all who have failed to grasp its significance have stumbled here. The fact is that Buddhism is a religion which possesses a definite philosophy, and its main problem centres in psychology. All the other religions are different in this respect. They are exclusively practical, and committed to no special philosophy. Their founders used cer-

tain religious terms and left it to the development of the churches to work out a metaphysical foundation. Christian philosophies, such as those of Thomas Aquinas and Duns Scotus, propounded doctrines that were very antagonistic among themselves, and yet they might all be considered as good Christian philosophies. Mohammedan philosophers, especially in Spain, were allowed great liberty of thought, and doubtless, too, interpreted their religion in various ways. Buddhism is different in that it permits great freedom in the development of rituals and has actually produced the most complicated and fantastic ceremonies with strong local coloring both in the south and in the north, in Siam and in China, while its underlying philosophy remained the same. But being a philosophy which requires abstract thinking, we must not expect that every parish priest should be acquainted with it, let alone understand it, and the main difficulty to Buddhists themselves is this apparent contradiction, that in one respect they teach unequivocally the non-existence of the soul, and in other respects as unequivocally urge the necessity of salvation for the life to come.

The present book enters in a general way into this main difficulty and throws light upon more than one side. Buddhism rejects all those features of Brahmanism which by Brahmins were deemed to be the essential features of religion, viz., the divine inspiration of the Vedas, the helpfulness of prayer, and the meritoriousness of sacrifices. Buddha replaces the first by independent investigation. "Be ye lamps unto yourselves," he says to his disciples, even in his dying hour. The second, viz., "prayers," he replaces by "vows." For the third, Buddhism has substituted flower offerings at Buddha's shrines. But the emphasis of a religious life is placed on walking in the noble eightfold path of righteousness. The Samkhya philosophy from which Buddhism took its start is a dualism. It regards matter as the cause of all pain, and seeks salvation in the riddance of the soul from the body. Buddha retained many of the formulas of the Samkhya philosophy, but he denied the existence of the soul as an essence, and saw in it a mere compound of activities. But here lies the difficulty. These activities are not nonentities, but though they are not substances they are yet in their peculiar character the most important realities of life. There is nothing in the world that a man can call his own, neither fortune nor power, nor even personal relations, wife, and children, and friends, except his deeds. They are he himself. He inherits them by his ancestors, and he transmits them to the world when he departs. Thus, that which constitutes his being existed before him and will exist after him. He is the continuity of certain activities in a new combination, and these activities continue in new combinations after his death.

It is perhaps difficult to understand the reality of such an existence which is unsubstantial, but any one trained in abstract thinking will not fail to grasp its significance. Similar propositions occurred again and again in the world of science and were denounced for similar reasons as destructive and nihilistic. For instance, in physics the idea prevailed that fire was a certain substance which was called

fire-stuff or phlogiston. When some advanced physicists came to the conclusion that phlogiston did not exist, they were first ridiculed for daring to overthrow the orthodox conception of fire, and were suspected of maintaining that fire was a non-entity. The same process again occurred when in physiology the time-honored "vital force" was denied to have any substantial existence. The old vitalist school once occupied the field alone, but any one who would not believe in a vital force was regarded as ignorant and impervious to the most obvious truths of physiology. Vitalism as an independent force in animated substances was regarded so much as a matter of direct experience that it took almost half a century for the new physiology to overcome this time-honored superstition. At present the old vitalism is entirely overthrown, and the only defendant of it, Professor Bunge, practically defends only the advisability of retaining the name which he, however, interprets in a new sense which as much denies the old vitalism as do the other physiologies. In this same sense Buddhism denies the existence of a soul-stuff in any form, be it as a soul-monad or as a soul-force, or as a kind of vital breath. It denies what the Brahmins call *âtman*, but it does not deny the reality of man's deeds, the reality of the importance of morality, the reality of the present life of man and its future continuance in this same life in which we now live. At the same time Buddhism employs symbols which practically are the same as the Christian symbols in representing the future life as the reappearance in a paradise. Nirvâna must not be confounded with the Christian heaven, for Nirvâna is realisable in this life as well as in any other life. Nirvâna is the attainment of salvation, not the enjoyment of heavenly bliss, and therefore the representations of Nirvâna and of the Western Paradise are very different in Buddhism.

The present book consists of six chapters. The first is an exposition of Buddhism, its origin from Brahmanism, and its connexion with the Brahman philosophies, especially the Samkhya school. The second chapter enters into philosophical questions, explaining the anti-metaphysical bent of Buddha's theory, the doctrine of the deathless, and of salvation as the attaining to the deathless. The third chapter is devoted to Buddhist psychology and to its denial of the *âtman*-soul. The concepts Karma and Nirvâna receive special treatment in the fourth chapter. The fifth chapter compares Christianity and Buddhism, bringing out not only its contrasts but also its striking similarities, both in ethics and in innumerable details which have always suggested the idea of a common origin of the two religions. The last chapter is cast in the form of replies to those Christian critics of Buddhism who have misunderstood its doctrines, especially the doctrine of the soul and its nihilism. The author believes that comparison is indispensable for acquiring comprehension, and for this reason he would urge Christians to study Buddhism and Buddhists to study Christianity. He believes that Buddhists would be immeasurably benefited by studying Christianity as it really is, especially in Protestant countries, while the Christians have very great need of studying Buddhist philosophy, which

formulated for the first time in the history of religion the fundamental problem of the religious life.

MODERN MYTHOLOGY. By *Andrew Lang, M.A., LL.D.* St. Andrews, Honorary Fellow of Merton College, Oxford, Sometime Gifford Lecturer in the University of St. Andrews. New York, London, and Bombay: Longmans, Green & Co. 1897. Pages, 212.

The luminous and voluminous *Contributions* of Prof. F. Max Müller to the *Science of Mythology* which we noticed in Vol. VII., page 625 of *The Monist* have met their scientific retort courteous in the present little volume of Mr. Andrew Lang, the well-known English writer, inquirer and vulgariser of folklore, editor, littérateur, and high-priest of English literary criticism—Prof. Max Müller's favorite target in his strictures on the anthropological school of mythological inquiry.

To animadvert upon the method of exposition employed by these two controversialists is not our concern. We shall limit ourselves to saying that the method of exposition employed is not adapted to the needs of the general reader, but in both cases is that of isolated and disconnected discussions upon subjects with which the student must be antecedently familiar, which, though they offer no intrinsic difficulties to comprehension, yet require prior interest and some preparatory philological and ethnological knowledge. Furthermore, there is much in both volumes that is personal. Mr. Lang in taking up cudgels for the anthropological school has followed, he claims, Prof. Max Müller's system of attack, and hence his reply is, as he himself phrases it, highly "desultory and rambling." The contents of Mr. Lang's book are as follows: I. Recent Mythology; II. The Story of Daphne; III. The Question of Allies; IV. Mannhardt; V. Philology and Demeter Erinnys; VI. Totemism; VII. The Validity of Anthropological Evidence; VIII. The Philological Method in Anthropology; IX. Criticism of Fetishism; X. The Riddle Theory; XI. Artemis; XII. The Fire-Walk; XIII. The Origin of Death. Each of these chapters is broken up into subdivisions after the manner of his opponent's book, and headed by bold-faced type—happily designed for the guidance of the reader through a chaotic maze of disordered argumentations. This, in conjunction with the excellent index, offsets the many disadvantages of the book and enhances its value for occasional consultation; for it really abounds in bright, witty, and pertinent remarks, notable both for their common sense and scientific insight.

Be the result of the controversy what it may, and opinion in these days seems to lean towards the anthropological school, the sweet and assuring remark of Mr. Lang at the conclusion of his volume still remains irrevocably true.

"If I am right, if he [Prof. Max Müller] is wrong, in our attempts to untie this old Gordian knot, he loses little indeed. That fame of his, the most steady and brilliant light of all which crown the brows of contemporary scholars, is the well-earned reward, not of mythological lore nor of cunning fence in controversy, but of wide learning and exquisitely luminous style."

Since Prof. Max Müller's theories of mythological interpretation are well known, we quote as an offset, the following clear statement by Mr. Lang of the anthropological method.

"Our system is but one aspect of the theory of evolution, or is but the application of that theory to the topic of mythology. The archæologist studies human life in its material remains; he tracks progress (and occasional degeneration) from the rudely chipped flints in the ancient gravel beds, to the polished stone weapon, and thence to the ages of bronze and iron. He is guided by material 'survivals'—ancient arms, implements, and ornaments. The student of Institutions has a similar method. He finds his relics of the uncivilised past in agricultural usages, in archaic methods of allotment of land, in old marriage customs, things rudimentary—fossil relics, as it were, of an early social and political condition. The archæologist and the student of Institutions compare these relics, material or customary, with the weapons, pottery, implements, or again with the habitual law and usage of existing savage or barbaric races, and demonstrate that our weapons and tools, and our laws and manners, have been slowly evolved out of lower conditions, even out of savage conditions. The anthropological method in mythology is the same. In civilised religion and myth we find rudimentary survivals, fossils of rite and creed, ideas absolutely incongruous with the environing morality, philosophy, and science of Greece and India. Parallels to these things, so out of keeping with civilisation, we recognise in the creeds and rites of the lower races, even of cannibals; but *there* the creeds and rites are *not* incongruous with their environment of knowledge and culture. There they are as natural and inevitable as the flint-headed spear or marriage by capture. We argue, therefore, that religions and mythical faiths and rituals which, among Greeks and Indians, are inexplicably incongruous have lived on from an age in which they were natural and inevitable, an age of savagery."

T. J. McC.

DIE MECHANIK IN IHRER ENTWICKELUNG. Historisch-kritisch dargestellt. Von Dr. Ernst Mach, Professor an der Universität zu Wien. Mit 250 Abbildungen. Dritte verbesserte und vermehrte Auflage. Leipzig: F. A. Brockhaus. 1897. Pages, 505.

It is a pleasure to record the appearance of the third edition of Professor Mach's *Mechanik*, which, more than any other book of recent years perhaps, has aroused the interest of thinking people in the foundations of mechanics and in the philosophy of science generally. The long succession of works which have followed its publication have borne witness to the fruitfulness and the necessity of researches in the theory and history of science as bearing upon the fundamental questions of philosophy, and there is no indication of this activity being on the decrease. We have recently received from Dr. Giovanni Vailati a pamphlet *On the Importance of Researches in the History of Science* (Turin, Roux Frassati e Co.),

forming the introduction to a course of lectures on the history of mechanics at the University of Turin, which portrays in detail the rise of these inquiries and correctly emphasises their importance. It is interesting to note the large number of courses which are now given in the universities of Europe on scientific history; and the reaction of these studies upon our views as to the nature of science and upon the less rigid presentment of its ideas, cannot but be a speedy and beneficent one.

The present edition of Mach's *Mechanik* has been carefully revised throughout, many errors have been eliminated, the matter which appeared in the second edition as appendices has been incorporated in the text, while several new additions, discussing recent views, such as those of Hertz, have been made. The book has been increased in this way by a total of thirteen pages. As its points of view are already familiar to our readers, we leave it with the hope that its good and enlightening influence may continue to reach wider and wider circles.

I DISINERDATI E I LORO DIRITTI. By *Pietro Pellegrini*. Borgo A Moszano: Tipografia Editrice, N. Vannini. 1897. Pages, 205. Price, 3 Lire.

This book on *The Disinherited and their Rights* is another contribution to the ever-present social question. The aim of the author is to set in proper relief the importance of the material element in social evolution, an element which he thinks has been unduly exaggerated. Evidently in Italy the influence of the materialistic conception of history is far greater than it is in America. The author modestly disclaims any attempt to put his treatise in a scientific form. He intends to show, he says, how the necessary and evident evolution of capitalism is about to take a juster form by creating a new juridical and social order upon the physical order now existing. Among the subjects treated in the various chapters are the development of society from the bourgeois to the proletariat, the physical industrial organism, the personality of industrial organs, and several strictly economic subjects, such as wages and interest, the limits of capital, the evolution of capital, etc. The concluding chapters are on socialism, the new era, and peace. I. W. H.

KANT-STUDIEN. Von *Dr. Erich Adickes*. Kiel and Leipsic: Verlag von Lipsius & Tischer. 1895. Price, 4 marks.

Adickes's *Kant-Studien* contains two treatises. The first treatise elucidates the development of Kant's epistemological views from the traditional philosophy of his time, which was Leibnitz's rationalism systematised by Wolf and modified by the empirical considerations of Crusius. The most important treatise that bears on this question is Kant's *Nova Diluvdatio* of 1755, his habilitation speech, which upon the whole still represents the old standpoint. A marked progress appears in Kant's writings of the years 1762-63, and his book "The Dreams of a Visionary" (*Träume eines Geistersehers*), show a radical change of front. He is now an empiricist in his writings until he became, through Hume, confronted with the problem of necessity and universality. This took place, according to Beno Erdmann

and Vaihinger, in 1772 or later, according to Adickes in 1769. The difficulties in which Hume's problem involves Kant and the various attempts to escape Hume's scepticism, until Kant found a satisfactory solution in his transcendentalism, are discussed in the fourth chapter, which is the most important part of the essay.

The second treatise of the *Kant-Studien* is an attempt at refuting Arnold's proposition that Kant wrote *The Critique of Pure Reason* in the year 1779. Adickes declares that Arnold's evidences are pure fiction, and undertakes to prove that the concise outline of the critique (*Kurzer Abriss*), which of course preceded the final execution of the book, was written in 1780.

DER ENTWICKLUNGSGANG DER KANTISCHEN ETHIK BIS ZUR KRITIK DER REINEN VER-
NUNFT. Von Friedrich Wilhelm Foerster, Dr. phil. Berlin: Mayer & Müller. 1894. Price, 2 marks.

The revival of Kant's philosophy is one of the most remarkable features of the present condition of German philosophy, of which the above pamphlet as well as Vaihinger's periodical publications are important symptoms.

The doctor's dissertation of Friedrich Wilhelm Foerster is an important and interesting contribution to the history of Kant's development from Eudæmonism to the idea of the autonomy of pure reason. Dr. Foerster bases his investigation upon a fragment of Kant's MS., published in the *Altpreuussische Monatsschrift*, Vol. XXIV., 3-4. Emil Arnold, on purely philological grounds, assigns the year 1789 as the date of this fragment. But considering the evidence which Dr. Foerster produces on purely internal grounds, it is probable that it characterises the period of transition, and is for that reason one of the missing links which prove that Kant's ideas of practical reason were not a mere product of his purely theoretical considerations, but are an expression of his practical experiences in life. The article is well written, and justifies us in expecting further good works from the same author. His dissertation, however, would be easier to read if it had been divided into subdivisions of some kind with separate headings. As it stands, without a table of contents and without an index, it requires much patience on the part of the reader to work his way through the author's expositions.

A STUDY OF KANT'S PSYCHOLOGY WITH REFERENCE TO THE CRITICAL PHILOSOPHY.

By Edward Franklin Buchner, Ph. D. Lancaster, Pa.: The New Era Print. 1897. Price, \$1.25.

This is one of the able essays that have been appearing in the Monograph Series supplementary to the *Psychological Review*, and will be found to be a thorough examination of Kant's psychological doctrines.

As a supplement to the *Psychological Review* appears also (April, 1897) No. 3 of *The Psychological Index* which is a bibliography of all the literature of psychology and cognate subjects for 1896, compiled by Mr. H. C. Warren, of Princeton, and Mr. L. Farrand, of Columbia. It is invaluable to all workers in this field.